Indian Archaeology

1961-62

A REVIEW



INDIAN ARCHAEOLOGY 1961-62
-A REVIEW

EDITED BY

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PREFACE

This annual *Review*, like its eight predecessors, incorporates matter on the archaeological activities in the country during the previous year. The matter has, as usual, come from diverse sources, and I gratefully acknowledge the co-operation of all those whose contributions have been utilized herein. A vast mass of material had to be handled, sorted and edited within a limited period of time ; that will explain the few inaccuracies that may be noticed in the following pages. For them I must apologize ; at the same time, the contributors themselves are responsible for the respective facts and interpretation thereof.

I heartily thank my colleagues in the Archaeological Survey of India who have helped me in bringing out this volume.

The present *Review* includes a new chapter, on Expeditions outside India. The genesis of the three Expeditions that worked outside India is explained in the introductory note to that chapter.

Another feature requires mention. Most readers are no doubt aware that an International Conference on Asian Archaeology was held in New Delhi in December 1961, as one of the functions of the Centenary Celebration of the Archaeological Survey of India. One of the Sections of the Conference set up a committee, consisting of the following archaeologists, to consider the problem of the terminology of Indian prehistory : Dr. F.R. Allchin, London; Professor R. J. Braidwood, Chicago; Dr. R. V. Joshi, Nagpur; Shri V. D. Krishnaswami, New Delhi; Shri B.B. Lai, New Delhi; Professor H. D. Sankalia, Poona; (the late) Professor B. Subbarao, Baroda; and Professor F. E. Zeuner, London. With Professor Braidwood (who was in favour of the use of culture-historical terms) dissenting, the Committee recommended the terms Early, Middle and Late Stone Ages (in preference to Series I, II and III, which have gained currency in recent years), or Lower, Middle and Upper Stone Ages, or Lower and Middle Palaeolithic and Microlithic for the Food-gathering Stages and Neolithic for the Food-producing Stage. In the following pages the accepted terms have been extensively used, but in practice it has not been possible to do away altogether with the term `microlith' or 'microlithic' owing to the inadequacy of data.

New Delhi:

The 1st November 1962 A. GHOSH

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INDIAN ARCHAEOLOGY 1961-62

—A REVIEW

EXPLORATIONS AND EXCAVATIONS

ANDHRA PRADESH

1. EXPLORATION IN DISTRICT GUNTUR.—The Nagarjunakonda Excavation Project of the Archaeological Survey of India[1], under Shri H. Sarkar, assisted by Shri K. Krishnamurthy, continued (*Indian Archaeology*, 1960-61—*A Review*[2], p. 1) the examination of some sites in the District. Tools of the Early Stone Age (pl. I A), comprising hand-axes, large as well as diminutive, discoids, cleavers, scrapers and flakes, were collected from sites around Dharanikota, Rentala and Chejerla. The last one, which is noted for one of the earliest living apsidal temples in India, also yielded the Rouletted Ware and a fluted core on chert. Megalithic cist-burials were located at Nemalipuram, about 63 km. from Guntur, and at Syamarajapuram on the Buggavagu, about 44 km. from Nagarjunakonda ; the latter also yielded a neolithic implement.

2. EXPLORATION IN DISTRICT KRISHNA.—At Donabanda, 22 km. north-west of Vijayawada, along the Masulipatam-Hyderabad road, the same party discovered neolithic implements with the associated pottery and megaliths, besides pottery-types comparable with those from the historical levels of Nagarjunakonda. Pottery of the early historical period was also found at Mungasala and Kisara, on the bank of the river Munneru, and Nawabpeta, near Nandigama, the first of these sites also yielding a neolithic implement. The Rouletted Ware was found at Paritala, about 25 km. west of Vijayawada.

3. EXCAVATION AT KESARAPALLI NEAR GANNAVARAM, DISTRICT KRISHNA.—The Nagarjunakonda Excavation Project of the Survey, under Shri H. Sarkar, assisted by Shri B. Vidyadhararao, conducted an exploratory digging at the extensive mound of Kesarapalli, about 20 km. north-east of Vijayawada on the Madras-Calcutta trunk road. The mound, measuring over 1J square km., is being extensively despoiled by indiscriminate digging. The examination of the already-exposed sections, which, at some places, were further cut with a view to stratifying the deposits (pl. I B), revealed the following sequence.

Period I was represented by a 2·7-m. thick deposit. Owing to the sub-soil water-table encountered at a depth of 5 m. below surface (25th March 1962), the natural soil could not be reached. The lowest stratum, composed of sandy deposit, yielded only a few sherds, largely indeterminate in shape, of red, black-slipped, black-and-red and grey

1 The Archaeological Survey of India is referred to in the following pages as the 'Survey'.

2 This publication is referred to in the following pages by the year only.

wares (fig. 1). Although painted pottery was entirely absent, the assemblage showed affinities with the chalcolithic material from sites in central and western India. Two polished neoliths recovered from the surface may perhaps be ascribed to this Period. Other finds included a terracotta spacer-bead, pottery disks and two bone pins (?). Associated with this Period was also a huge stepped pit, 4 m. in diameter, filled with ash, burnt earth, charcoal, pottery and mollusc-shells. The last-mentioned material, along with charred animal bones, was present in all the layers.

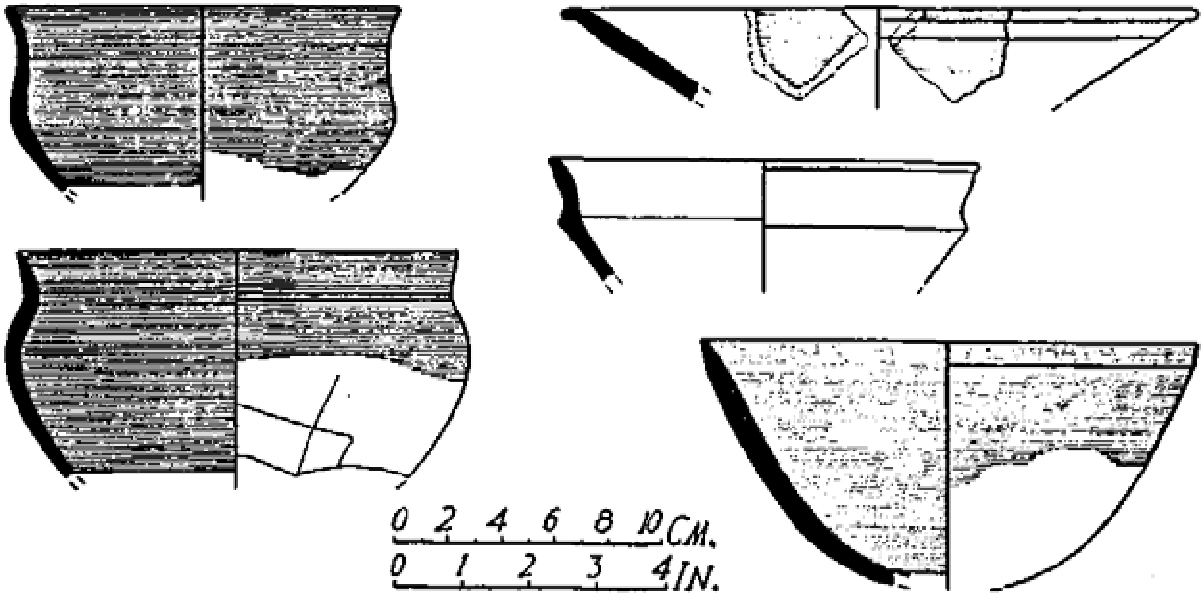


FIG. 1

Period II was marked by the appearance of iron and megalithic pottery. Of the ceramic industries of the preceding Period, the grey ware was completely absent, though a few shapes of the black-and-red and black-slipped wares continued for some time. Successive floor-levels with post-holes and remains of ovens were noticed in this Period.

The megalithic burials, situated 1 km. south-west of the habitation-area, belonged to the cist-variety.

In Period III, the Rouletted Ware formed the distinctive industry. One of the sherds of the Ware, collected from the surface, was found rivetted with iron pins.

In Period IV were encountered brick structures. The Rouletted Ware was completely absent. An Ikshvaku lead coin, besides beads of terracotta, glass and stone, formed the typical finds.

The last occupation of the site was represented by remains of the early medieval period.

4. EXPLORATION IN DISTRICT MEDAK.—Shri M. Siviah of the South-eastern Circle of the Survey noticed stone circles near Siddipet, Akkannapalli, Malial, Verareddipalli and Venkataraopet in Siddipet Taluk. He also picked up sherds of the Black-and-red Ware from the last-mentioned site.

5. EXCAVATION AT YELLESWARAM, DISTRICT NALGONDA.—The Department of Archaeology, Government of Andhra Pradesh, continued (1960-61, p. 3) the excavation

at Yellaisharam (Yelleswaram) under Shri Abdul Waheed Khan. The work was confined this season to the south-western corner of the valley, where a dolmenoid cist, a few urn-burials of the megalithic complex, remains of a bathing *ghat* with flight of steps descending into the river Krishna, stumps of columns of a huge *mandapa* covering the entire area of the mound, votive shrines with or without *bana-lingas,* a structure of ritualistic import, a large enclosure-wall with steps and drains of large dimensions were excavated.

6. EXCAVATION AT MUKHALINGAM, DISTRICT SRIKAKULAM.—With a view to assessing the archaeological importance and the antiquity of the site two small trial-pits were sunk by Shri K. Raghavachari of the South-eastern Circle of the Survey on the mound running parallel to the Vamsadhara river behind the ancient temple of Madhukesvara (Mukhalingesvara) at Mukhalingam. A large number of sherds of the Rouletted Ware were obtained. From the same mound surface-explorations in 1957-58 had yielded the Black-and-red and Rouletted Wares together with a Satavahana coin (1957-58, p. 64).

BIHAR

7. EXPLORATION *m* DISTRICT BHAGALPUR.—Shri Sachchidanand Sahai of the Varanasi Hindu University found the Northern Black Polished Ware, along with its associated grey ware of medium fabric, in the mound at Karangarh, in Nathnagara Thana, and sculptures of Vishnu on Garuda, Uma-Mahesvara, Sadyojata, Karttikeya and Surya of the early Pala period at Kheri hills, 19 km. south-east of Bhagalpur.

Some early Stone Age tools were picked up near Katoria by Shri A. D. P. Singh.

8. EXCAVATION AT ANTICHAK, DISTRICT BHAGALPUR.—The Patna University continued (1960-61, p. 3) its excavation at Antichak under Professor B. P. Sinha and Dr. R.C.P. Singh.

In trench ACK-4 a massive brick structure, possibly representing a *stupa,* with chambers and antechambers on either side was excavated (pi. II A). In the northern wing of the *stupa,* finely-carved stone pillars were found fallen above the lime-built floor of the antechamber. The floor-level of the chamber was higher than the rest and was reached by steps representing three phases of repairs and reconstructions. The steps of the earlier two phases were plastered, but those of the last one were plain. The chamber had an opening towards the north and showed sockets in the walls for holding wooden beams. An octagonal brick pedestal with an oblong mortise on the top to hold an image was found in the centre of the chamber. An image of crowned Buddha of Pala style in *bhumisparsa-mudra* with scenes from Buddha's life (pl.IIB) was found fallen over the pedestal.

The antechamber in the southern wing showed a brick-built and plastered entrance with circular stone pillar-stumps and oblong stone slabs on the floor. A massive stone-built door-frame opened into the central chamber. A lotus-shaped brick pedestal with mud plaster held by iron nails was found inside the chamber. The pedestal was deco rated with a floral design in red and black pigment over a white background (pi. Ill A) and showed a large seated image, of which only leg portions were available. To the right of the leg were found a votiva *stupa* and a terracotta elephant with lotus in its trunk. The floors on either side of the *stupa* were found covered with ash and charcoal indicative of a fire.

On one of the pedestals was found an inscription of the eleventh-twelfth century reading *ye dharma* etc. The associated antiquities included an intact figure of crowned

Buddha, a stone pestle, a stone railing-post, terracotta votive *stupas*, beads, decorative plaques and pieces of iron daggers and shields. The pottery consisted largely of red ware represented by bowls, lids, jars and sprinklers sometimes decorated with chequers and horizontal lines.

In trench ACK-2 three structural Phases were revealed. Ascribable to the first Phase were filled-in brick chambers over which rested the superstructure. A *pradakshina-patha* running around the main structure was also identified (pl. Ill B). Associated with this structure was a *surkhi-floor*. A headless inscribed figure of Buddha, iron objects including a nail-cutter, scraps of copper sheets, cowries, a crucible and several terracotta heads were found within the structure. The pottery was represented by red and grey wares, of which the former was coarse-grained and was with mica.

The second Phase was marked by the construction of a brick-wall, associated with which was a floor built of sand and lime. From this phase were recovered a bronze figure of Tara, stone statutes, antler, a bone point, a terracotta disk with solar design in the centre, terracotta beads of various shapes, seals, sealings and inscribed sherds, besides a few pieces of green glass. The associated pottery included red, grey and black wares. From the characteristic script on the seals and sealings and pieces of green glass and spouted black pottery, this Phase can reasonably be dated to the thirteenth to the fifteenth century.

To the last Phase of construction belonged a well-laid floor. Amongst the finds recovered may be mentioned iron nails and an image of Vishnu in black stone. The pottery showed certain decorative elements.

9. EXPLORATION IN DISTRICT DHANBAD.—A team under Shri Sita Ram Roy of the K. P. Jayaswal Research Institute, Patna, explored the valley of Ganja-Pahar, about 17 km. north of the Grand Trunk road near Nirsha and found a few Middle Stone Age tools like scrapers on quartzite, etc.

10. EXCAVATION AT SONPUR, DISTRICT GAYA.—In continuation of previous year's work (1960-61, p. 4), Dr. B. S. Verma carried out further excavation at Sonpur.

Trenches were laid out at two different sites on the mound; in confirmation of the earlier results it was revealed that the first habitation at the site started on sand-dunes and continued through three successive cultural Periods with a sub-division in the earliest. The earliest settlers of Period I A built their huts possibly of such perishable material as reed or leaves plastered over with mud. The ceramic industries characteristic of the Sub-period, as already reported earlier, was a crude black-and-red ware, although black ware and red ware were also known. The associated finds included arrow-heads and pins of bone.

In Sub-Period I B the black-and-red ware became more sophisticated and evolved, resulting in the appearance of the dish for the first time. No structures were met with.

Period II was distinguished by the occurrence of the Northern Black Polished Ware, including a class of painted ware. Besides, the black-and-red ware of the preceding Period also continued. A large number of antiquities, variously of stone, glass, copper, iron, bone, ivory (pi. IV A) and terracotta were found in this Period. Amongst the terracotta objects a figurine with a peculiar head-dress and an elegant skirt was of unusual interest (pi. IV B). Another noteworthy object meriting attention was a crystal human face with exotic features, the horizontal perforations on the head of the figures indicating its use as a pendant. A large number of iron implements like lance, spear-head, arrow-head,

daggers, etc., and copper ornaments (pl. V A), as also a dozen polished stone axes (pl. V B) were found, but there were no structures. The Period came to a close by a fire, as indicated by a thick layer of ashes occurring throughout the mound.

In Period III both the N.B.P. Ware and the black-and-red ware went out of use. Instead, a class of red ware of medium fabric formed the main industry. Amongst the noteworthy shapes was the common sprinkler. Structures of baked bricks were encountered. The associated finds included beads, bangles, terracotta toy-carts, human (pl. VI A) and animal (pl. VI B) figurines, antimony-rods of copper and a few iron objectes.

At the site located last year in the vicinity of the mound yielding microliths on the surface Dr. Verma found at a small depth from the surface a few brittle sherds of the black-and-red ware characteristic of Sub-Period IA.

11. EXPLORATION IN DISTRICT MONGHYR.—Shri Lakshmi Narayan Singh of the Varanasi Hindu University explored the ancient sites at the Jamalpur hill, Khakharadih and Sarahiyadih.

The Jamalpur hill, locally known as Kali-Pahar, yielded implements of the Early and Middle Stone Ages. The former comprised handaxes, cleavers and flakes, while the latter included points, blades, backed blades, flakes, etc.

Khakharadih, about 8 km. north-west of Abhaypur railway-station, yielded sherds of the Northern Black Polished Ware and red ware. Besides, a core, a scraper, terracotta beads and human figures and a stone pestle were also collected. Some fragmentary sculptures including that of Buddha in *dharmachakra-pravartana-mudra,* Vishnu and Hanuman in various postures and attitudes were noticed at Kali-thana. On stylistic grounds the sculptures could be assigned to the Pala period.

Sarahiyadih, situated about 8 km. north-east of Abhaypur railway-station, also yielded sherds of the N.B.P. Ware. A good number of sculptures belonging to the Pala period were also noticed. One of them shows a miniature *stupa* inscribed with three letters on the back, -while on another Buddha is shown in the standing posture with a broken inscription of four letters; the fragmentary inscriptions in both cases represent the Buddhist creed.

12. EXCAVATION AT VAISALI, DISTRICT MUZAFFARPUR.—In continuation of previous year's work (1960-61, p. 6), the K. P. Jayaswal Research Institute, Patna, under the supervision of Shri Sita Ram Roy, undertook excavation of Baniya and Virpur, of which the latter was a new site.

This year's trench at Baniya, with a 2- 13-m. deposit down to the sub-soil water-level, revealed a single-period occupation, represented by the occurrence of the Northern Black Polished Ware. A coarse red ware also occurred at mid-height of the deposit. The associated antiquities included : terracotta human and animal figurines, *nagas,* balls, dabbers and toy cart-wheel; beads variously of terracotta, crystal, amethyst, agate and carnelian; bangles and a broken oblong object of soapstone having a crescent standard (pi. VII A); cast and punch-marked coins; antimony-rods of copper; iron objects like dagger; bone pendants and a copper standing female figurine showing fine workmanship (pi. VII B).

The excavation near the Chaturmukha-Mahadeva temple confirmed the last year's findings regarding the occurrence of the N.B.P. Ware below the *stupa,* no sherd of this Ware being found in the body of the earthen heap. The associated red ware was also available. Other objects like terracotta figurines, stone beads, weights, ear-lobes, etc., were recovered.

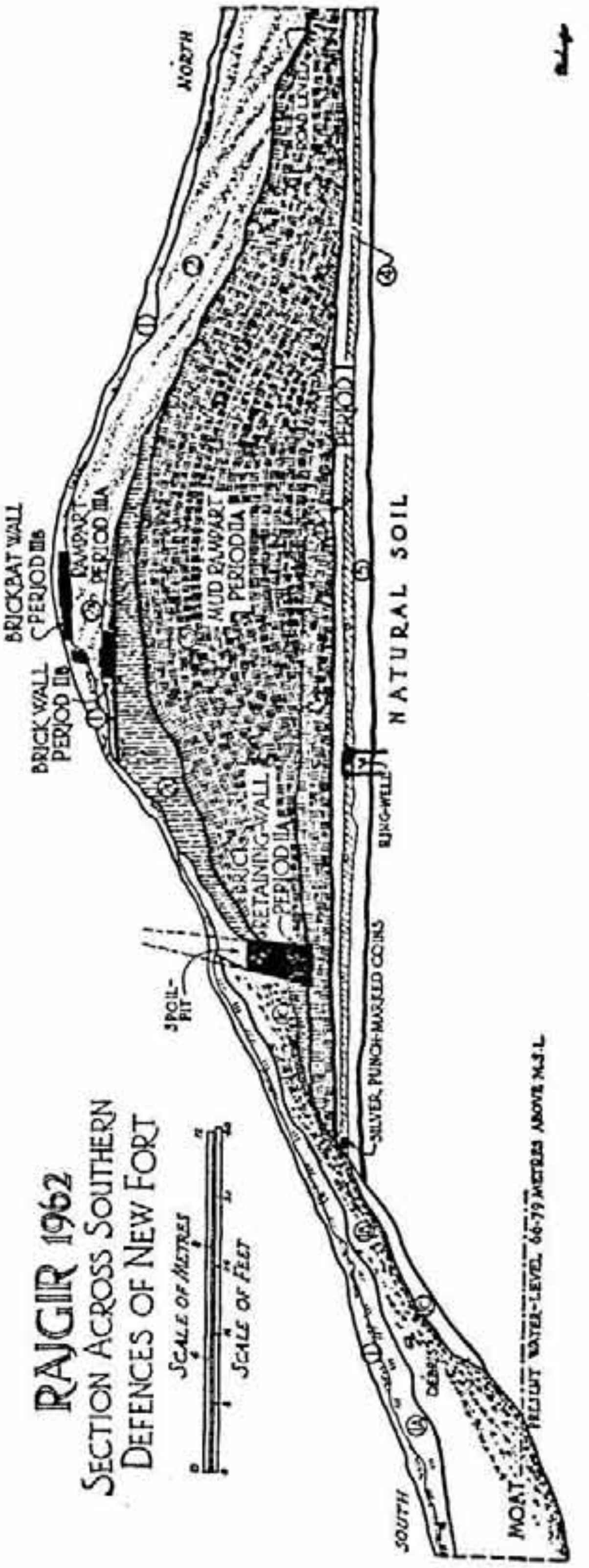

RAJGIR 1962
SECTION ACROSS SOUTHERN
DEFENCES OF NEW FORT
SCALE OF METRES
SCALE OF FEET
NORTH
SOUTH
NATURAL SOIL
MOAT
SPOIL-PIT
RING-WELL
BRICK WALL PERIOD IIB
BRICKBAT WALL PERIOD IIIB
MUD RAMPART PERIOD IA
BRICK RETAINING-WALL PERIOD IIA

FIG. 2

Excavation at Virpur revealed three Periods of occupation with a 2'59-m. thick deposit. Period I was characterized by red, black and grey wares of medium fabric, the latter represented by such shapes as the dish and bowl. Other associated finds included terracotta *naga* figurines, beads, variously of terracotta, carnelian and steatite, and a solitary tanged arrow-head of bone.

In Period II the Northern Black Polished Ware, along with its associated red and grey wares, made its appearance. Associated with these were other objects like typical terracotta human (pl. VII C) and animal figurines, beads, moulds, ear-lobes and fragments of iron daggers.

From Period III were obtained sprinklers along with other forms in red ware and bowls including the lipped variety and other vases in grey ware. Other noteworthy finds comprised terracotta human and animal figurines, beads, toy cart-wheels and glass bangles.

Work on the mound locally known as Marpasauna, situated in the north-western corner of the Virpur-Chaur, revealed that the site belonged to the late phase of Period II, in terms of the Virpur sequence, as indicated by the occurrence, though in lesser frequency, of the N.B.P. Ware. Amongst the finds of the site may be mentioned beads of terracotta, stone weights and ear-ornaments.

13. EXCAVATION AT RAJGIR, DISTRICT PATNA.—With a view to ascertaining the nature of the fortification, hitherto believed to be built of rubble, the Mid-eastern Circle of the Survey, under Shri Raghbir Singh, undertook excavation at the New Fort at Rajgir, situated outside the hill-girt valley, supposed to have been founded by Ajatasatru, the Magadhan contemporary of Buddha. A cutting measuring about 66 m. long and over 5 m. wide was laid across the southern defences near its south-western corner-bastion (fig. 2; pi. VIII A). The excavation, carried to a depth of 18 m. below the extant top of the defences, revealed three main Periods with sub-divisions in the latter two. The earliest of these, represented by a deposit of the average thickness of 1 -21 m., belonged to the pre-defence occupation. The lower l-m.-of this deposit was essentially non-occupational and contained towards its top occasional bits of shapeless potsherds of red ware. The remaining strata showed evidence of habitation as indicated by stone foundations and ashy patches (pi. X A). The Northern Black Polished Ware formed the distinctive industry of this deposit. With it were associated some sherds of red ware of medium-to-fine fabric and having painted linear designs in black pigment (pl. XII B). The other noteworthy finds included: terracotta human figurines (pls. XII C and XIII A and B); copper objects (pl. XIII C) ; and a hoard of fourteen punch-marked coins (pl. XI B). Iron was in use during this period. A unique discovery was a fragment of a steatite amulet (pl. XII A) showing, on the obverse, three circles, each enclosing three symbols, out of which an animal stands on top, a bird below on right and a square on left with possibly a fish inside and, on the reverse, three vertical lines. This Period came to a close as a result of conflagration, indicated on the site by deposits of burnt material.

The mud-rampart, ascribable to Period IIA, rested directly over this layer (pl. IX A). The basal deposits of the rampart were composed of about 1-m. thick yellowish-brown mud with dark bands. Over this deposit was raised the main core of the mud-rampart to a height of 7- 31 m. and retained on the southern side by a brick wall, standing to a height of 2-13 m., being 1 -21 m. wide at the top and battered to an angle of 17° (pl. VIII B). The top of the rampart was hardened by yellowish mud and brickbats. The base of the mud-rampart was available to a width of 40.53 m., but on the northern side it was 3.04 m. less wide. Associated with it was a moat (pl. EX B), the full width and

depth of which has not been so far determined. From the core of the rampart was found almost the same type of pottery as is found in the pre-rampart deposits.

In Period II B a brick fortification-wall was added to the extant top of the mud-rampart.

Over the collapsed debris of the brick fortification, a 2. 13-m. thick deposit of earth mixed with ash was laid in Period III A. Besides pottery of the same class as found in the earlier mud-rampart of Period II A, some glass beads (pl. XIII D), inferior pottery and iron objects were also recovered from this deposit. Over the top of this repaired rampart was raised, in Sub-Period III B, a 33'5-m. wide wall, built essentially of brick-bats possibly robbed from the remains of the earlier walls and available to a height of .38 m. A small retaining-wall was also observed over the southern slope of the rampart of Period III A.

In the absence of direct evidence, the dating of the different Periods of the rampart lacks precision. It is, however, surmised that Period II of the defences may belong to the sixth-fifth century B.C.

Clearance of the brick walls at the south-western corner-bastion revealed structures of three successive Phases (pl. X B). The lowest of these, with a .30-m. high brick platform, was built of incomplete bricks and covered the mud-rampart of Period II A. The platform was sealed by yellowish clayey deposit, over which was raised a battered brick platform, 2-89 m. in width. Over the debris of the battered platform, a wall of brick-bats was raised during Sub-Period III B to protect the weathering of the rampart of the proceeding Sub-Period III A.

Unfortunately the rubble fortification-wall (pl. XI A), with its width ranging from 4'60 to 5-50 m. at places and with semi-circular bastions on the outer side, exposed elsewhere over the southern and eastern defences, was not available in the excavated trench. Thus, its stratigraphical relationship with the defences of Period II of the present cutting remains to be established.

14. EXPLORATION IN DISTRICT PURNEA.—Dr. B. S. Verma collected sherds of fine grey ware near the medieval fort of Jalalgarh. The site remains buried under silt deposited by the Kosi river and is being despoiled by the construction of a canal. A large number of antiquities were collected from the cuttings of the canal.

15. EXPLORATION IN DISTRICT RANCHI.—At Sonahatu a few microliths and small dolmens were found by Shri B. K. Sharan of the Mid-eastern Circle of the Survey.

16. EXPLORATION IN DISTRICT SAHARSA.—Dr. B. S. Verma explored the following ancient sites in the District. Gaush-Khan-ki-garhi, about 3 km. north of Banagaon, was found to belong to the late Gupta period. Kopagarh, Burwagarh and Srinagar, the last showing rampart-walls and bastions, yielded antiquities of the Pala period. About 100 m. south of Srinagar was located a dilapidated Siva shrine.

17. EXPLORATION IN DISTRICT SANTAL PARGANAS.—In the course of exploration in the District, Shri Sita Ram Roy of the K. P. Jayaswal Research Institute discovered the following sites yielding microliths: the valley of the Harhar, about 17 km. off the Deoghar-Chakia road; the area around the Phuljhari hill, about 10 km. to the left of the Jamtara-Dumka road from Dubrajpur (pl. XIV A); the locality near the Lidapisa hill, about 10 km. to the right of the Jamtara-Dumka road from Jhorjukha (pl. XIV B); Baljor *nullah* in Godda Sub-Division; and Amuar on the eastern bank of a small river named Chir in the same Sub-Division (pl. XV). The types included blades, burins, points, scrapers, etc.

18. EXPLORATION IN DISTRICT SARAN.—Shri Hari Nandan Pandey of the Department of Ancient Indian History, Culture and Archaeology of the Varanasi Hindu University explored the ancient sites at Chiranda, Mahamdagarh, Manjhigarh, Chakrigarh and Muiyagarh.

Chiranda, situated in Chhapra Sub-Division, consists of a series of mounds. The mounds yielded grey ware represented by the dish and bowl, the Northern Black Polished Ware and the associated red ware. Some fragmentary stone sculptures of the late medieval period and a few specimens of terracotta animal figurines were also noticed.

The mounds of Mahamdagarh and Manjhigarh showed traces of a defence-wall and a moat. Both yielded sherds of the N. B. P. Ware and the associated red ware. A ring-well and some brick structures were also noticed at Manjhigarh.

The mounds of Chakrigarh and Muiyagarh, both in Sivan Sub-Division, showed remains of several brick structures, the size of the bricks being 45.7 X 25-4 X7.6 cm. The latter mound also yielded sherds of the N. B. P. Ware.

Shri B. N. Prasad of the Mid-eastern Circle of the Survey found sherds of the Northern Black Polished Ware at Sitalpur and located a mound at Bhuwalpur known as Bhuwalpurgarh-devi-ka-sthan.

19. EXPLORATION IN DISTRICT SINGHBHUM.—Shri D. Sen and Shri A. K. Ghosh of the Prehistory Section, Department of Anthropology, University of Calcutta, discovered during their exploration in District Singhbhum a large number of Early Stone Age, microlithic and neolithic sites along the Subarnarekha, Sanjay and Kharkai river and their tributaries. Tools of the Early Stone Age, comprising the cruder Abbevillean to finer Acheulian in type were unearthed in definite stratigraphic sequences. Mircroliths of various types were found *in situ.* Several factory-sites rich in cores and flakes, besides finished implements, were discovered. A promising neolithic site was discovered near Seraikalla. Neolithic celts, pounders, saddle-querns, chisels and hammer-stones were **found *in situ.***

Shri D. Sen, Shri H. K. Bose and Shri A. K. Ghosh, assisted by the post-graduate students of the Department of Anthropology, University of Calcutta, explored several megalithic sites at Barbil, Kendposi, Ukri, Guriadi, etc. The megalithic types mainly included dolmenoid structures and menhirs. At Barbil, as many as two hundred and forty dolmenoids were found in a single locality, of which two were excavated. The megalithic structure was characterized by a single flat slab of stone supported by several rudimentary orthostatic boulders. The urns underneath contained bone fragments.

GUJARAT

20. EXCAVATION AT LOTHAL, DISTRICT AHMADABAD.—Excavation was resumed (1959-60, p. 16) at the Harappan site of Lothal under Shri S. R. Rao of the Northern Circle of the Survey with the two-fold object of ascertaining whether the micaceous red and the black-and-red wares could be traced in any distinct horizon, pre-Harappan or otherwise, and also to finding out the gap, if any, between Lothal A and Lothal B. Two cuttings, measuring respectively 11 m. square and 30x5 m., were laid out in the main mound. In both, the natural soil was reached at a depth of 6 m. below surface. The micaceous red ware was found to increase in quantity gradually in the lower levels of Lothal A but was always associated with the Harappan wares.

The present season's work confirmed that there was no appreciable gap between the end of the mature Harappa period (Lothal A) and the beginning of the period of decadence (Lothal B). One of the most intense floods that occurred in Phase III of Lothal A destroyed the township in *circa* 2000 B. C, thus bringing to an end the great prosperity of the town. The river took a swing to the east of the town after the original flow-channel on the western margin of the mound was silted up. This necessitated digging a channel from the river to the dock to sluice ships at high tide.

It has now been established beyond doubt that the trapezoid basin, measuring 218 X 37 m. and enclosed by brick walls standing to a height of 4 m. at several places, was intended to serve as a dock for berthing ships (pl. XVI). According to expert opinion the dock was accessible from the sea at high tide. Five anchor-stones (pl. XIX A) with holes in the centre recovered from the area are a further proof of its use as a dockyard. Trial-trenches dug at intervals across the suspected course of the inlet-channel, running from an easterly to a south-easterly direction, revealed a bowl-like depression (pl. XVII A) in the section through which ships were sluiced at high tide. The successive deposits of fine sand and silt overlying the shallow gravel-bed of the channel and the estuarine shells recovered from the dock leave no doubt as to the flow of tidal waters through the estuary into the dock. A brick wall with abutments (pl. XVII B), similar in construction to the walls of the dock, was traced to a length of 10 m. at the north end of the town. Its plan and purpose are yet to be ascertained.

Amongst other structural remains exposed this year, mention may be made of a brick-built apron-wall (pl. XVIII A) at the southern end of the main drain in the acropolis. The public drains were connected with the dock on the one hand and the river on the other. Other interesting structures laid bare in the central part of the lower town included two houses with a long verandah, built close to each other in Phase III (pl. XVIIIB). The walls which were more than a metre in thickness bore mud plaster. In one of the rooms a conch-shell, a stone grinder and a micaceous red-ware vessel were found.

To the extreme north of the lower town, large quantities of copper slag (pl. XIX B) and a furnace used for refining metal or melting copper ingots for making tools were discovered. In the previous season a bun-shaped copper ingot, similar in shape, size and weight to those from Susa, several crucibles (pl. XX A) and a crescentic collared copper implement, apparently meant for working metals, were found in the industrial sector of the town.

Among other important antiquities mention may be made of a 'Persian Gulf seal of grey steatite (pl. XXI B), five Indus seals with unicorn and script (pl. XXI A), four others with only the script and terracotta sealings (pl. XXI C). Two jumping gazelles flanking a double-headed dragon are seen on the 'Persian Gulf' seal, which is the first real evidence of maritime trade between India and the Persian Gulf islands, where similar seals have been found. Another significant find is a chipped and ground stone chisel (pl. XX B) from Lothal A, suggesting contact between the inland chalcolithic folk and the Harappans. In this context, the occurrence of the coarse grey ware and the black-and-red ware assumes importance. Other small finds include a terracotta couchant ram (pl. XX C) and a heart-shaped steatite ornament.

21. EXPLORATIONS IN DISTRICTS BHUJ (KUTCH), JAMNAGAR, JUNAGADH AND RAJKOT.—The Department of Archaeology, Government of Gujarat, under Shri J. M. Nanavati, assisted by Shri M. A. Dhaky, explored the following sites : Moti-Rayan in District Bhuj (Kutch), Mul-Madhavpur and Moti-Kalavad in District Jamnagar and Thebachada in District Rajkot. Of these the first was an early historical site, the next

two yielded the Prabhas and the Lustrous Red Wares and the last had late or decadent Harappan ware.

22. EXPLORATION IN DISTRICT BROACH.—Under the auspices of the Maharaja Sayajirao University of Baroda, Dr. G. J. Wainwright, Shri K. T. M. Hegde and Shri S.C. Malik of the Department of Archaeology and Ancient History undertook a survey of the Pleistocene deposits of the lower Narmada river, from Chandod to the sea. Evidence was obtained for three fossil-soils, each of which was overlain by fluviatile deposits, post dating a cemented-gravel phase with its accompanying clays, silts and sands. The cemented gravel was separated by an unconformity from a consistent deposit of red clay of unknown thickness. A longitudinal profile of these features was worked out.

The lowermost of the three soils can be related to the red-soil phase of the Sabarmati, Mahi and Orsang rivers, which also possess the cemented-gravel and basal-clay stages. It is, therefore, the two younger soils which represent the new factual evidence. As in the case of the rivers mentioned above, cemented gravel is implementiferous here as well.

These deposits have been related to fluctuations in the level of the sea during late Pleistocene times when the river periodically eroded and aggraded its bed. As a result of this correlation, it would appear that the handaxe-cleaver complex of the area can be assigned to the aggradation to a high sea-level phase during the Last Interglacial.

23. EXCAVATION AT NAGAL, DISTRICT BROACH.—The Western Circle of the Survey, under Shri K. V. Soundara Rajan, carried out excavation at Nagal, about 8 km. west of Ankleshwar, opposite Broach, on the southern side of the Narmada estuary. The excavation was in continuation of the earlier small-scale work conducted by the same officer in 1960 at Broach town mound (1959-60, p. 19), where, in Period I, the occurrence of black-and-red ware as also of the Northern Black Polished Ware was attested.

The present excavation revealed a single (pl. XXII B) cultural occupation represented by the black-and-red ware. However, there were vestiges of a microlithic industry (pl. XXII A) comprising fluted cores, flakes and scrapers, located right into the disintegrated top zone of the natural black cotton soil, and this was also associated with many comminuted fragments of ochrous red ware, too fragmentary and shapeless to determine clear affiliations, but broadly tying up with corresponding evidence from Maheswar and Nasik-Jorwe.

The main occupation of the black-and-red ware itself could be broadly divided into three Phases. No structures, of either burnt or mud-bricks, were found in the cuttings. The earliest Phase yielded black-and-red ware of medium fabric, often thick-sectioned but well-fired and represented by dishes, deep bowls, *lota-shaped* vessels, wide basins with recurved rims, carinated dishes, etc. and diminutive tools. Associated with them were some bone points (pl. XXVII A) or arrow-tips, copper rings and beads, an ivory comb and terracotta beads. A silver piece of irregularly circular shape, which may be a punch-marked coin, with one face beaten flat and the other carrying some symbols (?), was also found in the lowest Phase.

In the next Phase the black-and-red ware showed sophistication and competence in technique and continued in greater frequency along with the associated plain ware. Of the latter a thick grey ware with profuse incised decoration, mostly of basket and reed pattern (pl. XXVIB), deserves special mention. Graffiti (pl. XXV) were found both on the black-and-red and the associated wares and in fact form a characteristic features of these wares. The graffiti comprised, besides *svastika,* arrow-designs, grids and patterns of multi-pronged comb-designs, stylized animals, often in rows, on the exterior of pots.

A distinctive decorative feature of the black-and-red ware consisted of designs executed on the inner flat bases of dishes or lids. The patterns included a series of concentric and overlaping looped spirals, thick-lined square panels with diagonals, basketwork, etc. (pi. XXVI A). These were apparently executed, before firing and prior to the application of slip, probably with a blunt stick or graphite piece, the lustre of which appears through the slip in a subdued way. Among the antiquities found in this level may be mentioned grey-coloured terracotta animal figurines (pl. XXVIII A) including the cow, bull, buffalo, elephant, dog, etc., modelled with care and delicacy, a long-cylinder square bead of agate (pl. XXVIII B), terracotta beads, ivory combs (pl. XXVII B) and disks, miniature pots of clay and saddle-querns and pestles.

The third Phase was characterized by a slightly coarser black-and-red ware, associated with some grey as well as red-local wares and yielded etched carnelian beads (pl. XXVIII C), bone points, stone pestles, legged querns, copper antimony-rods, bangles of shell, ivory and bone and net-sinkers. A unique specimen of double-barbed and tanged arrow-head was an outstanding find. The Northern Black Polished Ware and its associated types were completely absent in this Phase.

On the analogy of Broach the upper levels of Nagal may be dated to about the second century B.C. Excepting the lowest level, iron was noticed throughout the occupation, though not in adequate quantities. The restricted use of copper was also attested. Regular kitchen-floors with remains of post-holes, sometimes circular in outline (pl. XXIV B), and door-hinges were recovered in a few trenches. Double rows of oblong post-holes were also common.

The strata were characterized by a made-up habitation-floor, at each stage, of fine brown clay or black soil succeeded by a series of fine ashy occupation-deposits, and again refloored with similar clay or black soil (pl. XXIII A). The sites must have been considerably inundated (pl. XXIII B) and occasionally encroached upon by the river Narmada, which must have been flowing past. On the northern tip of the mound, a regular dyke of black soil was raised with a ditch on the inner side, perhaps to meet the erosional effect of the river (pl. XXIV A).

Animal bones were picked up in large quantities and together with the occurrence of bone points assume significance for the economy of the settlers.

By its location in the Narmada estuary and by the post-chalcolithic nature of its occupation, Nagal would bridge the gap between the late and post-Harappan chalcolithic sites in southern Gujarat on the one hand and early historical sites yielding in their lowest levels the N. B. P. Ware.

24. EXCAVATION AT DEVNIMORI, DISTRICT SABAR-KANTHA.—Under the auspices of the Maharaja Sayajirao University of Baroda, the work at Devnimori was continued (1960-61, p. 9) for the third season by the late Professor B. Subbarao and Shri S. N. Chowdhary.

Of the *stupa* a quadrant of the drum was completely excavated to see the evidence of any earlier phase. As it was not possible to dig the entire structure, the evidence obtained was somewhat fragmentary. The most significant feature of the first Phase seems to be the existence of the four niches at the centre on the four cardinal sides of the second platform of the *stupa*. The architectural features noticed on the outer wall of the *vihara* also showed a similar addition of decorative elements without any proper bonding between the first and the second Phases (pl. XXX A).

In the second Phase, an outer layer of decorative mouldings and other motifs was added and the niches were filled in (pl. XXX B). In two of the niches two Buddha heads were found. In one of them the usual base of the pilaster was noticed in an irregular

position, while in the other a large number of bowls with pointed bases, possibly lamps, were discovered.

The proportions of the structure were determined by careful drawing, which showed that the height of the second platform had been double the lower platform. The most interesting feature of the architecture was the existence of a fixed unit, like the modern module. The distance between the centres of two pilasters would form such a unit, measuring 2-36 m., which is also the height of the lower platform. The lower platform consists of eleven bays with twelve pilasters and the second platform of nine bays with ten pilasters. The height of the second platform is double the unit. For purposes of reconstruction on paper, therefore, the following formula was observed with success : first platform, one unit; second platform, two units; and drum, four units. In proportions it corresponds to the representation on the plaque discovered in the excavation.

The dome which once overlay the drum began about 7 m. higher than the base of the lower platform (pl. XXXI A).

The area around the monuments, which included the *vihara,* the *stupa* and the apsidal temple, was completely cleared up of all debris. The whole area was found to be paved with burnt bricks. Two more votive *stupas* and fragments of a highly-disturbed structure, 9. 14 X 18.97 m., were found. From the size of the bricks used they could be assigned to the first Phase of the *vihara* and the *stupa.*

The summary of the results is as follows.

Phase I : Some time in the second century A.D. structural activity started at this Buddhist settlement. It consisted of a very simple *stupa,* a *vihara* and a square structure in front. There is no direct evidence about its date except the occurrence of the Red Polished Ware. The brick-size, 40 - 6 x 28 .6 x 6 . 4 cm., conforms to the typical Kshatrapa type, well-known in Gujarat.

Phase II: As a result of severe floods which forced the people to strengthen the walls of the *vihara,* the plinth-level was raised. This Phase is very well-dated by the hoard of thirtyeight coins of the later Kshatrapa rulers, the latest coin in the series belonging to *Svami* Rudrasena III, ascribable to A.D. 351. The second phase could, therefore, be dated to the latter half of the fourth century A.D. Stylistically also the images and the decorative elements show great affinities to the later Gandhara art (third phase of Harold Ingholt's classification, A.D. 300-400). The most significant additions were the finely-moulded outer facade of the two platforms of the *stupa* and the outer wall of the *vihara.* The mouldings on the outer wall of *vihara* closely correspond to those of the second phase mouldings of the two platforms of the *stupa.*

Phase III: This represents the last Phase of the monuments at Devnimori and could be dated to the sixth century A.D. As previously stated, the coins of Sarvabhattaraka, the first Maitraka ruler, point to this date. Significantly enough, the brick-size dropped down to 36 X 25.4 X 6.4 cm., corresponding to those noticed at Baroda between A.D. 600-1000. In the course of the clearance of debris from the area in front of the *stupa,* silver Sassanian coins were also found.

25. EXCAVATION AT SHAMLAJI, DISTRICT SABAR-KANTHA.—With a view to correlating the Buddhist settlement with the town-site, excavation was undertaken by the late Professor B. Subbarao at Shamlaji (pl. XXXIB), situated in a broad tributary valley about 80 m. downstream on the river Meshvo. The distinctive feature of the site is the existence of a strong brick-built fortification enclosing roughly an oblong area measuring 670. 50 X 304 . 80 m. The size of the bricks used was 40 .6 X 28 6 x . 4 cm., the normal size in vogue in the Kshatrapa period. At places the bastions were intact up to a height of 7 .62 m. from the present ground-level. A trial-trench, 39.62 X 3.65 m. was dug in front of the

fort-wall (pi. XXXII A) without cutting it across, as it would lead to the erosion of the fields behind it. The total height of the defence-wall including the foundation was found to be 10-66 m.

The excavation revealed four main Phases with sub-divisions in the second. Each of the main Phases was separated by the collapsed debris of the preceding.

Phase I, which preceded the defences, was represented by a structure of unusually small well-burnt bricks of the size 33 X 22-7 X 7-6 cm. (pl. XXXII B). A large number of crucibles and an appreciable quantity of iron and copper slag were obtained from this Phase. At the base of a crucible was found a lump of copper (pl. XXXIII A). A terracotta tuyere (pl. XXXIII B) was also found with charcoal. It looked as if the area had been used for smelting copper and iron from the ores in the Aravallis. The associated pottery belonged to the early Kshatrapa or the beginning of the Christian era.

Phase II A marked the beginning of the fortifications which were built up of the standard Kshatrapa bricks and were battered to an angle of about 30°. A great calamity like a flood or some indeterminate phenomenon seems to have been responsible for the collapse of the wall. On the basis of the brick-size this Phase can be dated to between A.D. 100 and 300. In the next Sub-phase II B the defence-wall was rebuilt after levelling down the debris. Two walls running east-west connected by a closely-paved brick platform formed the characteristic feature of this Phase. The associated finds included black-painted red ware, a richly-embossed pottery in association with the Red Polished Ware and a worn-out silver Kshatrapa coin. This Phase can be correlated with the second Phase of the *stupa* and the *vihara* at Devnimori *{circa* 300-500). Phase II was marked by a hearth and a big structure built of bricks of the size 36 x 25-4 x 6.4 cm. with 1-21-m. thick walls. The size of the bricks corresponds to that obtaining in Phase III of the *stupa* and the *vihara* at Devnimori. The Red Polished Ware continued in this Phase as well.

Phase III related to the period representing the Maitraka and Chaulukya rule in Gujarat. Five brick structures including platforms belonged to this Phase, which can be dated between 600 and 1200. Typical burnished grey ware, heavy micaceous and other wares already known from Baroda, Periods III and IV (600-1400), and Vadnagar, Period III (600-1000), were obtained.

Phase IV, being the last phase, was associated with the reconstruction of the modern temple of Shamlaji in the sixteenth century. A number of copper coins of Ahmad Shah I (1410-43), *trisula paisas* of Mewar and Gaekwad coins, including one of Khanderao (1870), were found in the deposits which overlay the structure.

On the present showing Phases IIA and B of the fortification at Shamlaji correlate with the equivalent Phases of the *stupa* and the *vihara* at Devnimori, while Phase II C of the former corresponds to Phase HI of the latter. The later Phases of Shamlaji were not available at Devnimori.

26. EXPLORATION IN DISTRICT SURAT.—In the region around Nagal, Shri K. V. Soundara Rajan of the Western Circle of the Survey located two more protohistoric sites at Warthan and Andhi, about 40 km. south of Nagal in Taluk Olpad.

In the former, a two-fold sequence was revealed by a trial-trench. The earlier of these was represented by the occurrence of a black-painted red ware. The upper one, which followed after a desertion, was marked by the occurrence of plain black-and-red ware similar to that found at Nagal. The site, however, continued in occupation till the beginning of the Christian era, as evidenced by pottery and other typical finds. The painted pottery here (pl. XXIX A) was characterized largely by concave-sided cari-nated dish, decorated with series of oblique slashes, grids, honeycombs, etc., on the

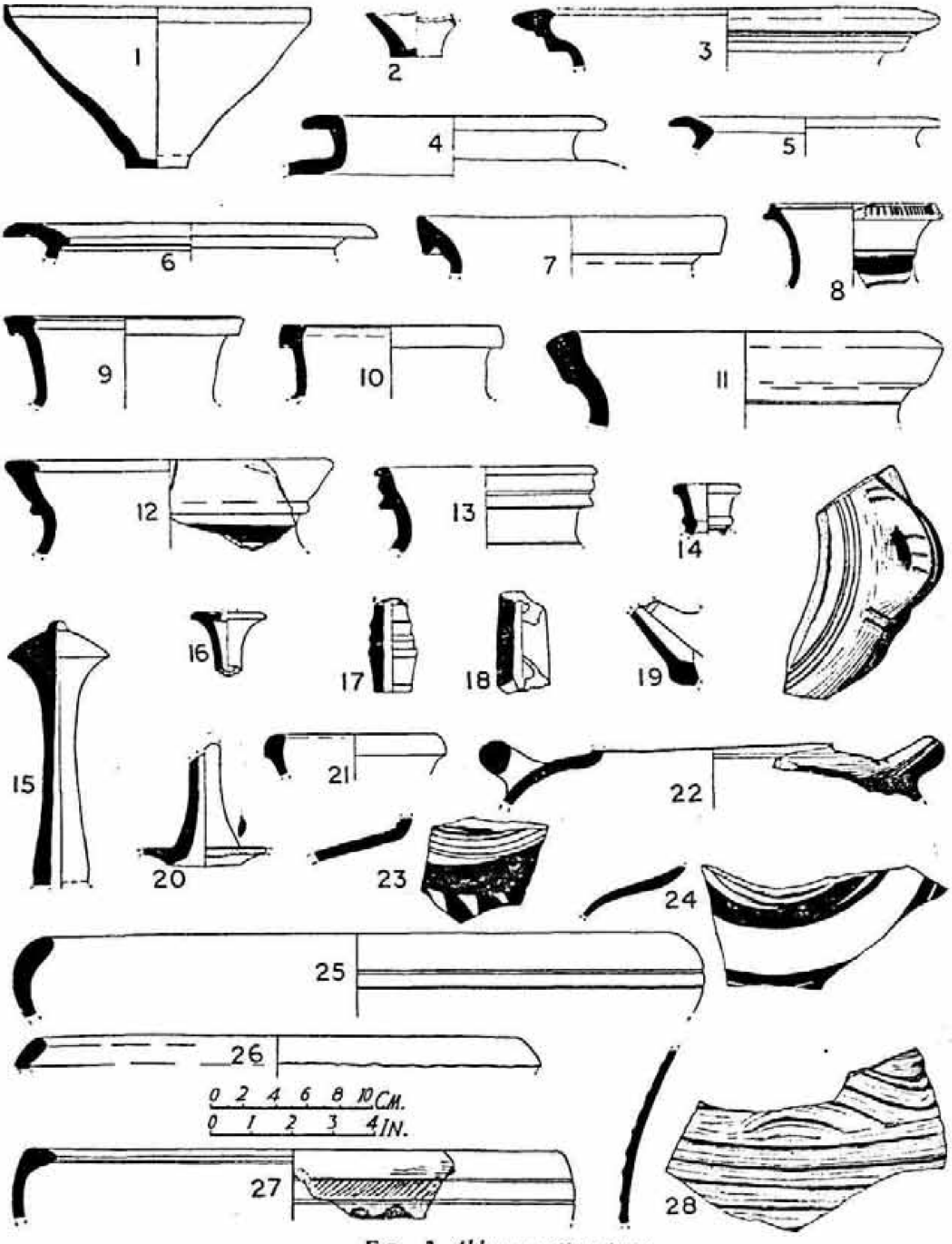


FIG. 3. *Akhnur: pottery-types*

red-slipped convex exterior. A thicker pottery in sturdy fabric with painted designs both in black and in chocolate pigments was also known. Of particular interest among the painted pottery was the occurrence of graffiti. Although a few pieces of stone flakes were obtained from these levels, none of them seemed to be a regular microlithic tool.

The site of Andhi, however, yielded a good number of fluted cores and flakes of the microlithic order (pi. XXIX B), besides black-painted red and plain black-and-red wares. The sequence here revealed that in the upper levels of the chalcolithic strata the black-painted red ware was overlapped by the plain black-and-red ware. The painted pottery, however, was of a degenerate type and lacked the typical thin concave-sided carinated dish, noted at Warthan.

HIMACHAL PRADESH

27. EXPLORATION IN DISTRICT BILASPUR.—See below, p. 38.

JAMMU AND KASHMIR

28. EXPLORATION IN JAMMU.—In the course of exploration within 32 km. north west of Jammu, Shri B. M. Pande and Shri Sardari Lai of the Frontier Circle of the Survey discovered early historical sites at Akhnur, Ambaran, Mandli-ka-Mehra and Guda.

The sites in the Akhnur area yielded a plain red ware, sometimes slipped, the types represented being the bowl with a vertical sharp-edged rim and sides tapering to a flat

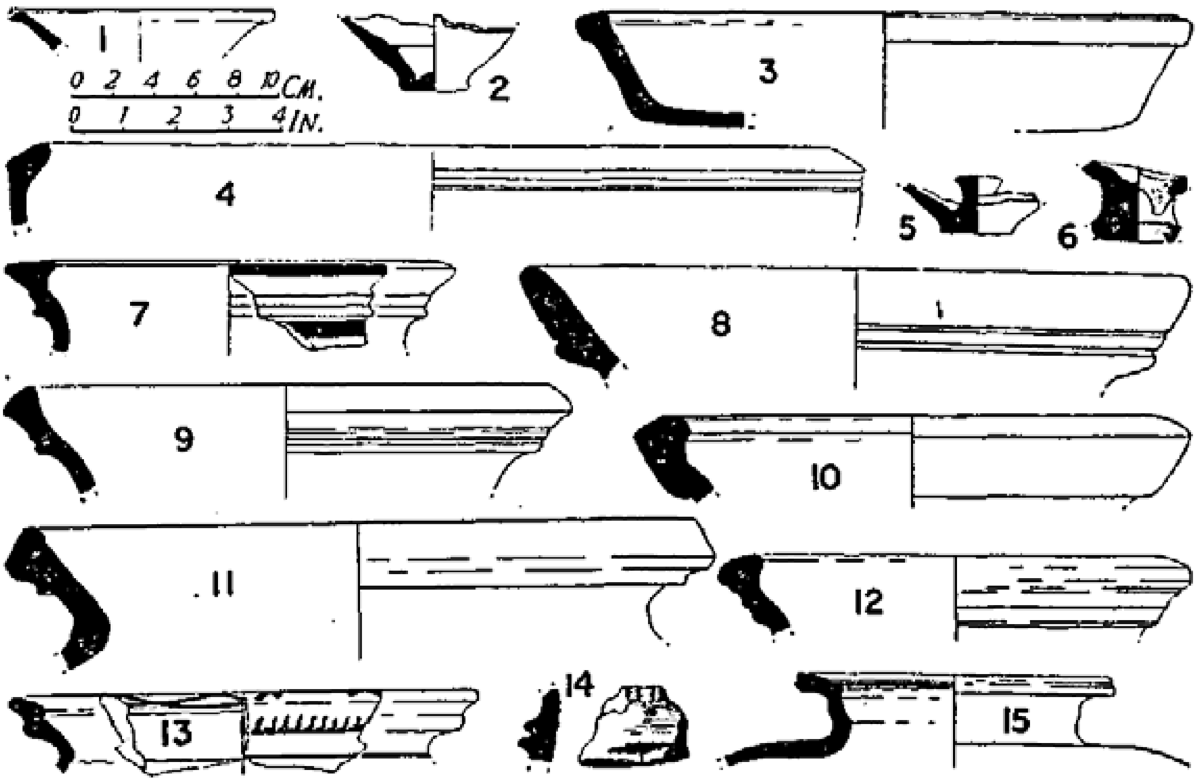


FIG. 4. *Mandli-ka-Mehra and Guda: pottery-types*

thickened base (fig. 3, 1), vase with splayed-out flat rim having cordon below it (fig. 3, 3) and its variants (fig. 3, 4-7 and 9-13), bottle-necked jar (fig. 3, 14), sprinkler (fig. 3, 15, 16 and 20), basin (fig. 3, 25, 26 and 27), handle having deep incised oblique designs (fig. 3, 22) and spouts (fig. 3, 8 and 19). A few black-painted red (fig. 3, 8, 23 and 24) and incised sherds (fig. 3, 8, 27 and 28) were also found.

Ambaran yielded a fairly large number of terracotta heads ascribable variously to the fourth-fifth and eighth centuries.

The sites of Mandli-ka-Mehra and Guda yielded pottery, including the painted and the decorated variety, similar to that obtained at Akhnur. The types represented were the lid (fig. 4, 1, 2 and 5), basin (fig. 4, 3 and 4), deep bowl (fig. 4, 8 and 10) and jar (fig. 4, 7, 9, 13 and 15). One of them was painted on the interior of the lip and decorated with oblique incised notches on the outside of the rim (fig. 4, 13). Some of the painted sherds recall the ceramic tradition of the Rangmahal culture of north Rajasthan, roughly contemporaneous with the Kushan and early Gupta periods. Of some interest was a damaged terracotta head of an archaic type with pinched eyes and nose and slightly-uplifted face. The hair-style and technique of modelling is reminiscent of the Kushan period.

29. EXCAVATION AT BURZAHOM, DISTRICT SRINAGAR.—In continuation of the previous year's work (1960-61, p. 11), the Frontier Circle of the Survey, under Shri T. N. Khazanchi, assisted by Shri Sardari Lai, Shri B. M. Pande and Shri S.P. Jain, undertook excavation on the southern sector of the mound on an area-digging basis, with a view to obtaining an integrated plan of the dwelling-pits and their structural features. The trench of last year was also extended for proper correlation of the megalithic complex with the general cultural sequence of the site.

The excavation confirmed the four-fold sequence revealed last year. Of these Periods I and II belonged to the neolithic, Period III to the megalithic and Period IV to the early historical periods.

In Period I, as many as sixteen pits, cut directly into the natural soil, were exposed. The largest of these (pl. XXXIV A) measured 2 . 74 m. at the top and upwards of 4- 57 m. at the bottom and 3·96 m. in depth. The side-walls of the pits were plastered with *karewa* mud. The three landing-steps, as exposed, reached only to a depth of 1 .21 to 1 .52 m. from the top of the pit, pointing to the probable use of a ladder for entry and exit. The occurrence of post-holes on the surface of the pit indicates the likelihood of a superstructure. The pit-filling showed bands of ash and charcoal, clearly suggestive of human occupation.

Another interesting feature was the existence of a crescent-shaped pit separated from a wider pit by a walling of natural soil. The former was perhaps used for storage-purposes, as evidenced by its contents, such as birch, burnt or otherwise, charred hay and burnt clay, along with a broken pot in an inverted position and a bone harpoon. The possibility of the superstructure, consisting of wooden posts and thatched roof covered with birch having caught fire cannot be ruled out. Until recently birch was the normal roofing-material in this region.

The occurrence of stone hearths near the mouth of the pits and the presence of shallow storage-pits, 60 to 91 cm. in diameter, in close proximity suggests that the pit-dwellers would shift to the ground-level on sunny days. Some of these storage-pits yielded animal bones and a few bone tools. On the floor of one of the dwelling-pits was found an antler's horn. No grains of any type have so far been obtained in any of the pits.

In three of the pits were found conical-shaped but irregularly-dressed leaning stones, .91 to 1 . 51 m. in length and . 22 to . 44 m. in width (pl. XXXIV B). Their function remains

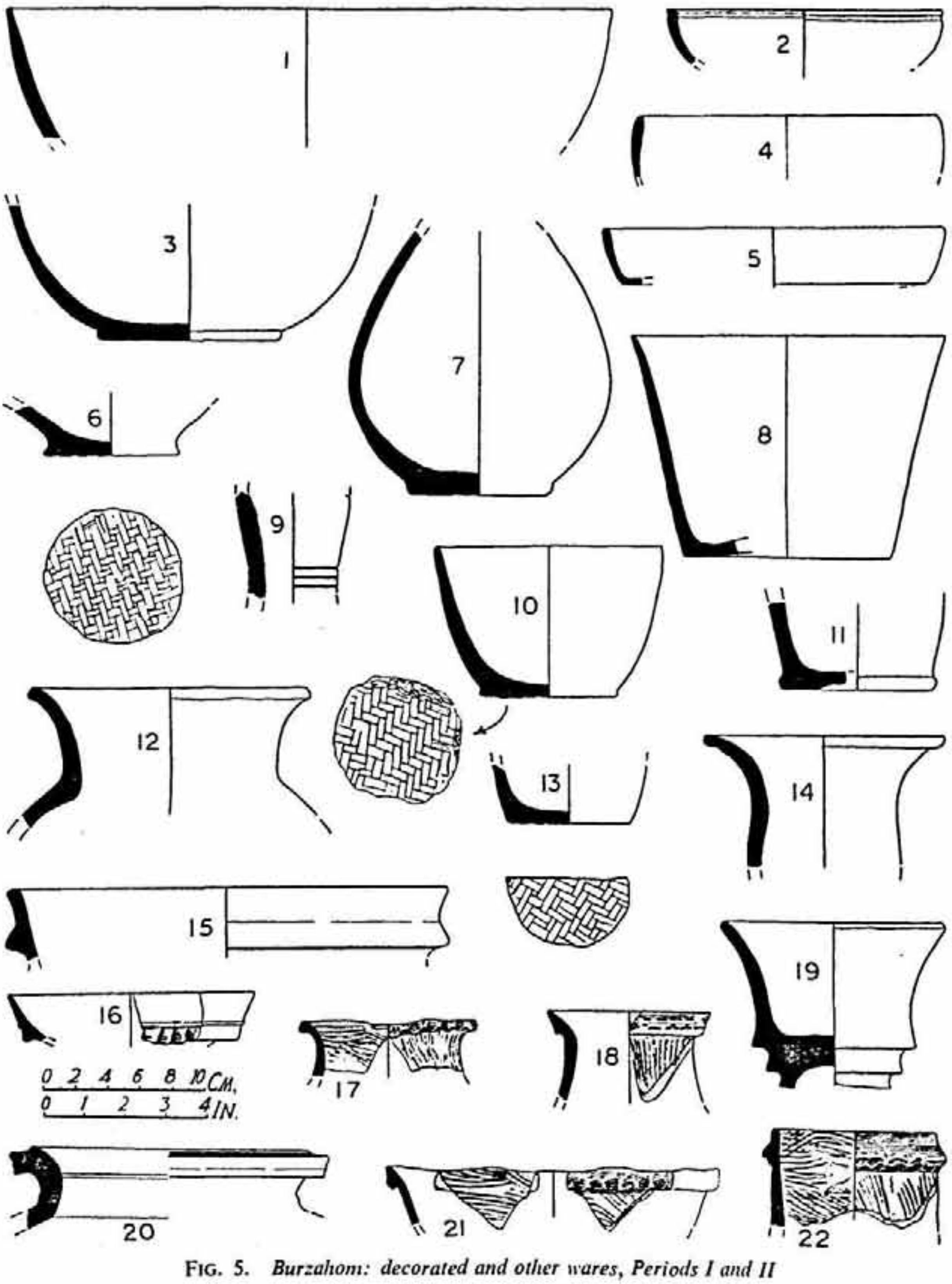


FIG. 5. *Burzahom: decorated and other wares, Periods I and II*

elusive. Two such stones were also noticed in association with a burial of the megalithic phase (Period III).

Summarizing the avilable evidence, it may be stated that the dwelling-pits of Period I (pl. XXXV A) were invariably cut into the *karewa* soil, narrow at the top and wide at the bottom with a flat floor and side-walls occasionally plastered with mud. The landing-steps in the deeper pits reached only to a part of the depth, indicating the use of a ladder for further descent. While post-holes on the periphery of the mouth suggest the likelihood of a superstructure of perishable material, stone hearths and small-sized storage pits on the ground-level point to an open-air life during the summer months (pl. XXXV B).

In the succeeding Period, II, the mouths of some of the pits, which had by that time got filled up, were plastered with mud, covered with a thin coat of red ochre and used as a floor. The use of red ochre as a colouring-material is attested all over the site. Successive floor-levels of this Period composed of *karewa* soil were excavated in the cutting. An interesting feature of one of the floors was a series of post-holes numbering fortyfive and running athwart the trench in an area of 3.96 X 1.21m. at a depth of 2.13 m. below surface (pl. XXXVI A). The complex is suggestive of a large structure. No wooden material, charred, decayed or otherwise, was, however, encountered in this area. The alignment was nearly straight. Associated with another floor was a hearth and an oval pit with a mean diameter of 1.04 m.

The next Period, III, was marked by an intrusion of new ideas into the site. Deep and wide pits were cut into the underlying floor-levels of Period II for erecting megalithic structures. In one case a rubble wall (pl. XXXVI B) was built over a dwelling-pit. Though no clear plan was discernible, the complex formed a rough semi-circle, opening on the south-eastern side. For keeping the stones in position, a dry-rubble packing was provided. About 1-50 m. below surface was exposed a huge stone of the megalithic complex. No structural remains excepting a few post-holes were noticed in the post-megalithic Period, IV.

The pottery of the neolithic Periods, I and II, was characterized by a crude hand-made ware showing grey, shades of dull-red, drab, brown, buff and burnished black surfaces (figs. 5-7). In the earlier Period, however, the pottery was usually coarse both in fabric and finish and was represented by the bowl, vase and stem. In Period II a burnished black ware of medium fabric (fig. 6) made its appearance. It included such shapes as the dish (fig. 6, 2, 3, and 6), sometimes with provision for a stand (fig. 6, 1), bowl (fig. 6, 5, 8-11 and 13), globular pot (fig. 6, 15), jar (fig. 6, 12, **16-21),** stem with triangular perforations (fig. 6, 23) and a funnel-shaped vase (fig. 6, 27). A distinctive type in the grey or black burnished ware was a high-necked jar (fig. 7) with a flaring rim, globular body and flat base. On the lower part of the neck were incised oblique notches. Mat-impressions formed exclusive designs on this ware (pl. XXXVIII A).

In Period III the pottery, predominantly of red ware, was generally wheel-made, though the fabric was coarse. Some of the wares of the preceding Period limitedly continued.

Period IV, roughly belonging to an age earlier than the Buddhist site of Harwan, ascribable to the third-fourth century A.D., yielded a red ware of fine-to-medium fabric, often slipped and mostly wheel-made.

The bone tools recovered from the excavation were singularly individualistic in character and showed very finely polished and sharp working-ends. They included (fig. 8; pl. XXXVII) short daggers, both small and large points, awls, antimony-rods, polishers or scrapers, chisels, needles with eyes and harpoons including unfinished

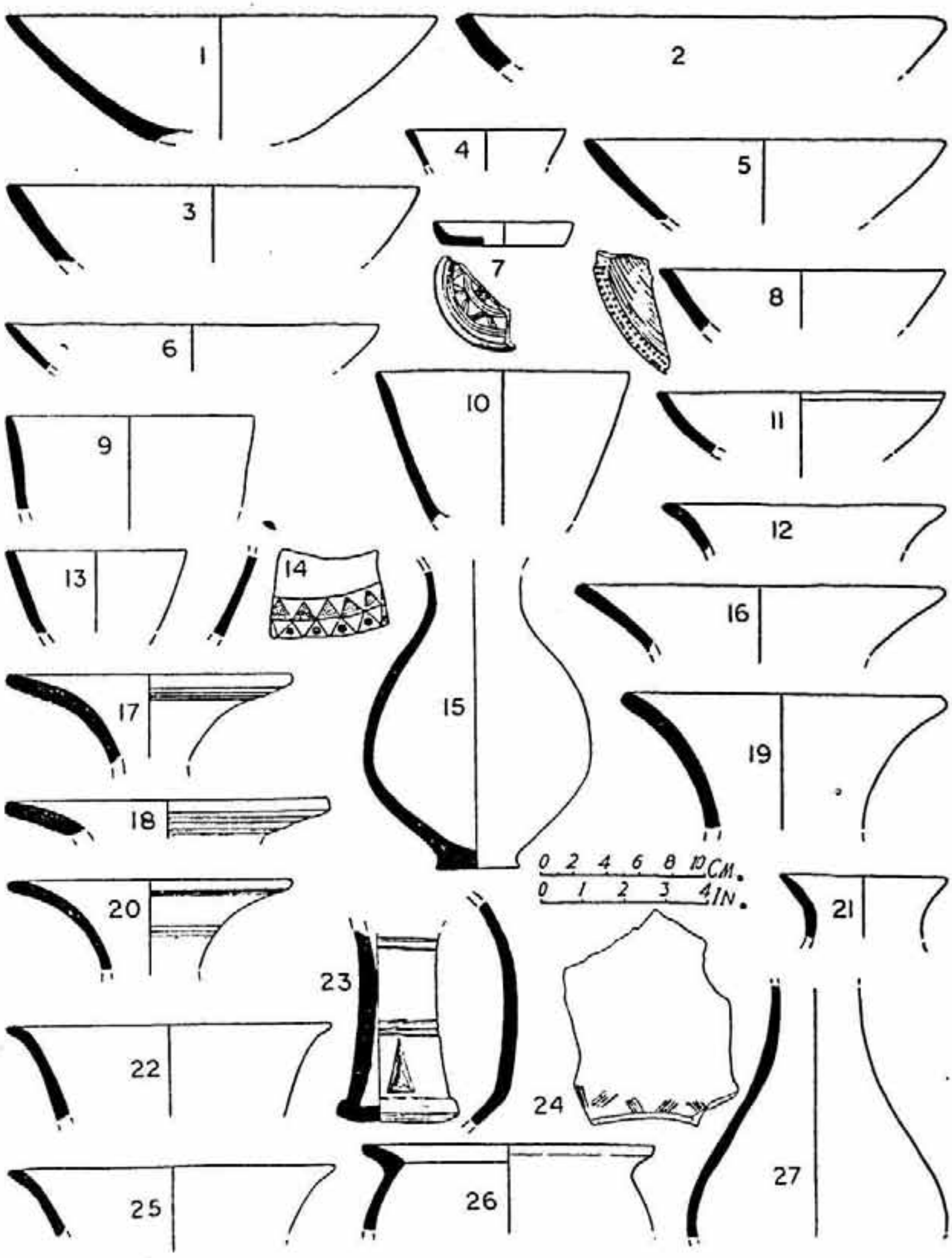


FIG. 6. *Burzahom: black burnished ware, Periods I and II*

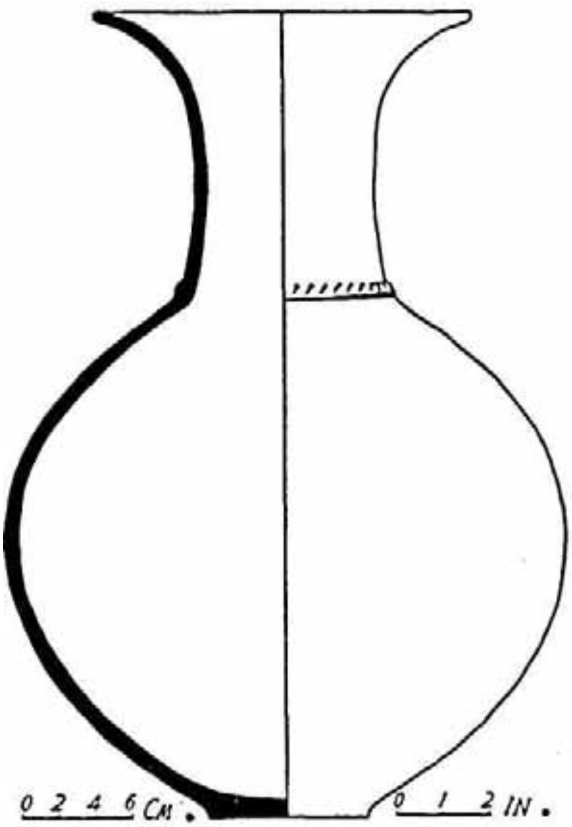


FIG. 7. *Burzahom: high-necked jar in black burnished ware, Period II*

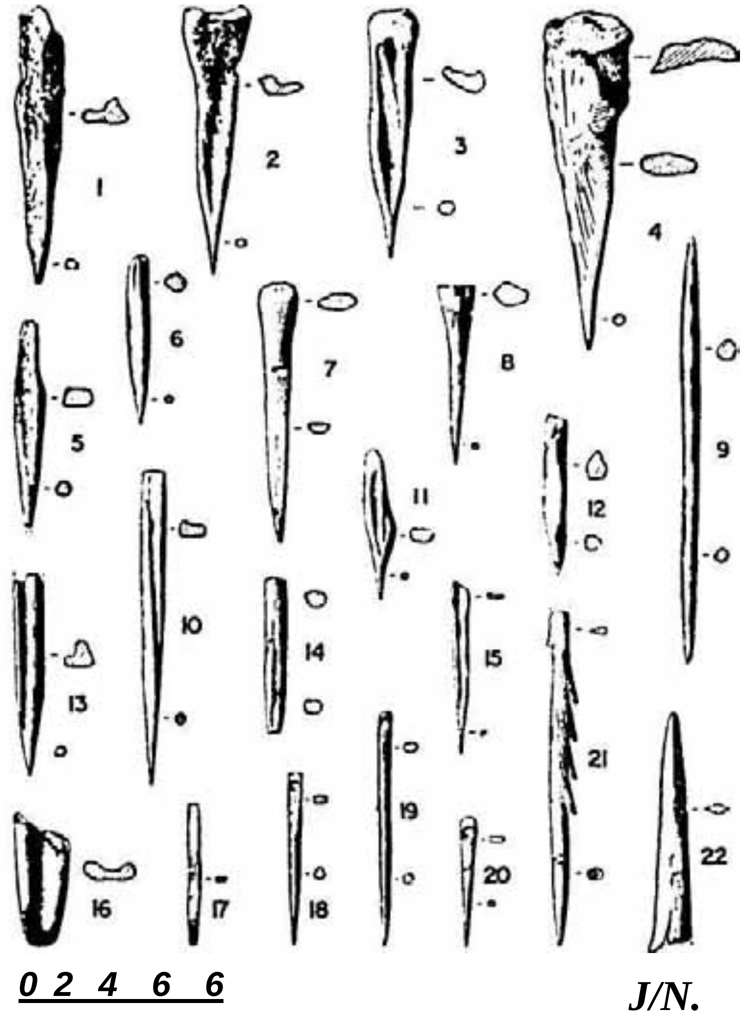


FIG. 8. *Burzahom : bone tools*

specimens. The greatest frequency of bone tools was observed in Period II. In Periods III and IV the polish on them was of a low order.

The stone objects (pl. XXXVIII B) consisted of polished axes, harvesters, polishers, pounders, chisels and mace-heads. These are typologically different from their southern counterparts.

KERALA

30. EXPLORATION IN DISTRICTS QUILON AND TRIVANDRUM.—Shri K. Chandrasekha-ran of the Southern Circle of the Survey found a few rock-cut cave temples at Ittiva and Kattikkal, megalithic cairn-circles and cists at Kodumon and Poothankara and urn-burials at Angadickal, besides an image of Buddha at Karumugapally and some mural paintings at Vaikuntapuram in Kodumon village in District Quilon. He also found rock-cut cave-temples at Iroopara and many Brahmanical sculptures at Aramada, Tiruvallam, Vanchiyoor and Neman, besides some mural paintings on the sanctum-walls of Padma-nabhasvami temple at Vanchiyoor in District Trivandrum. The paintings closely resemble in style those at the Mattancherry Palace at Cochin.

MADHYA PRADESH

31. EXPLORATION IN DISTRICT HOSHANGABAD.—Shri M. V. N. Krishnarao and Shri B. P. Bopardikar of the Prehistory Branch of the Survey explored an Early Stone Age site near Dhamasa, 24 km. south-west of Hoshangabad. The site lies on a high ground above the Narmada flood-plain. Typical tools, comprising handaxes, cleavers and discoidal cores, and a large number of flakes, including flake-blades, were obtained from the angular debris, mixed with red clay, resting on the weathered quartzites. In some sections laterite was seen between the red clay and the rock. Both in tool-content and stratigraphy this site is similar to that at Adamgarh near Hoshangabad.

32. EXPLORATION IN DISTRICTS HOSHANGABAD, JABALPUR AND NARSINGHPUR.—Under a research-programme of investigation of the Pleistocene deposits of the Chambal, the Narmada and the Godavari, sponsored by the Council of Scientific and Industrial Research, New Delhi, Dr. A. P. Khatri, in continuation of his earlier work (1960-61, p. 17), further investigated the Pleistocene deposits with fossil-cum-tools occurring along the Narmada river between Hoshangabad and the Marble Rocks at Bheraghat. In the course of his exploration about a hundred more mammalian fossils (pl. XLVIII) were collected. They included the *Bos bubalus, Elephas antiquus (namadicus), Elephas indicus, Hippopotamus, Equus, Cervus* and *Sus.* A preliminary study of the surface-collection indicates four categories of fossils according to the degree of their fossilization. But the fossils were found *in situ* in three horizons accompanied by tools in successive stages, exhibiting a progressive evolution. The change in the faunal content was not marked except in the third gravel which yielded recent species.

33. EXPLORATION IN DISTRICT MANDLA.—Shri S. G. Supekar of the Deccan College Post-graduate and Research Institute, Poona, surveyed the upper Narmada region between Amarkantak and Mandla and discovered about twelve sites, five of them factory-sites, of the Middle Stone Age, within a radius of 8 km. of Dindori. The tools included scrapers, points, blades, cores, etc., the raw material being mainly chert. Most of them were collected from the open cultivated fields within a distance of 3 to 5 km. on the either bank of the Narmada. Nowhere were the tools found in stratified river-deposits. Some specimens of fossilized wood were also found at Dindori and in Nigwanigarh-Pahar, 8 km. south-east of Dindori.

34. EXPLORATION IN DISTRICT MANDASOR.—Shri R. K. Lai of the Government Degree College, Mandasor, located an Early Stone Age site on the northern outskirts of Mandasor, behind the College-building. The tools comprised handaxes and cleavers, besides a few scrapers and microlithic cores. A series of ring-wells were noticed by him on the mound opposite the Mahadeoghat on the bank of the river Sivna. The mound also yielded pottery and other antiquities of the historical period. Another ancient site was located by him about 270 m. east of the place of the discovery of the pillars of Yasodharman at village Sondhni. The site, according to Shri Lal, may represent the ancient Dasapura of Yasodharman's time.

35. EXPLORATION IN DISTRICT REWA.—Shri S.R. Rao of the Northern Circle of the Survey discovered ten rock-shelters in the Itar-Pahar hill, 36 km. from Rewa, on the fair-weather road leading to Sitapur and Mauganj, situated within a radius of 5 km. (also below, p. 99). From the point of view of paintings, Rock-shelters 1, 4, 5 and 10 are very important. Lithic implements comprising fluted cores, parallel-sided blades, a point and an arrow-head were found in Rock-shelters 2, 3 and 10, where an undisturbed occupational deposit, ranging from 10 to 30 cm. in depth, was also observed.

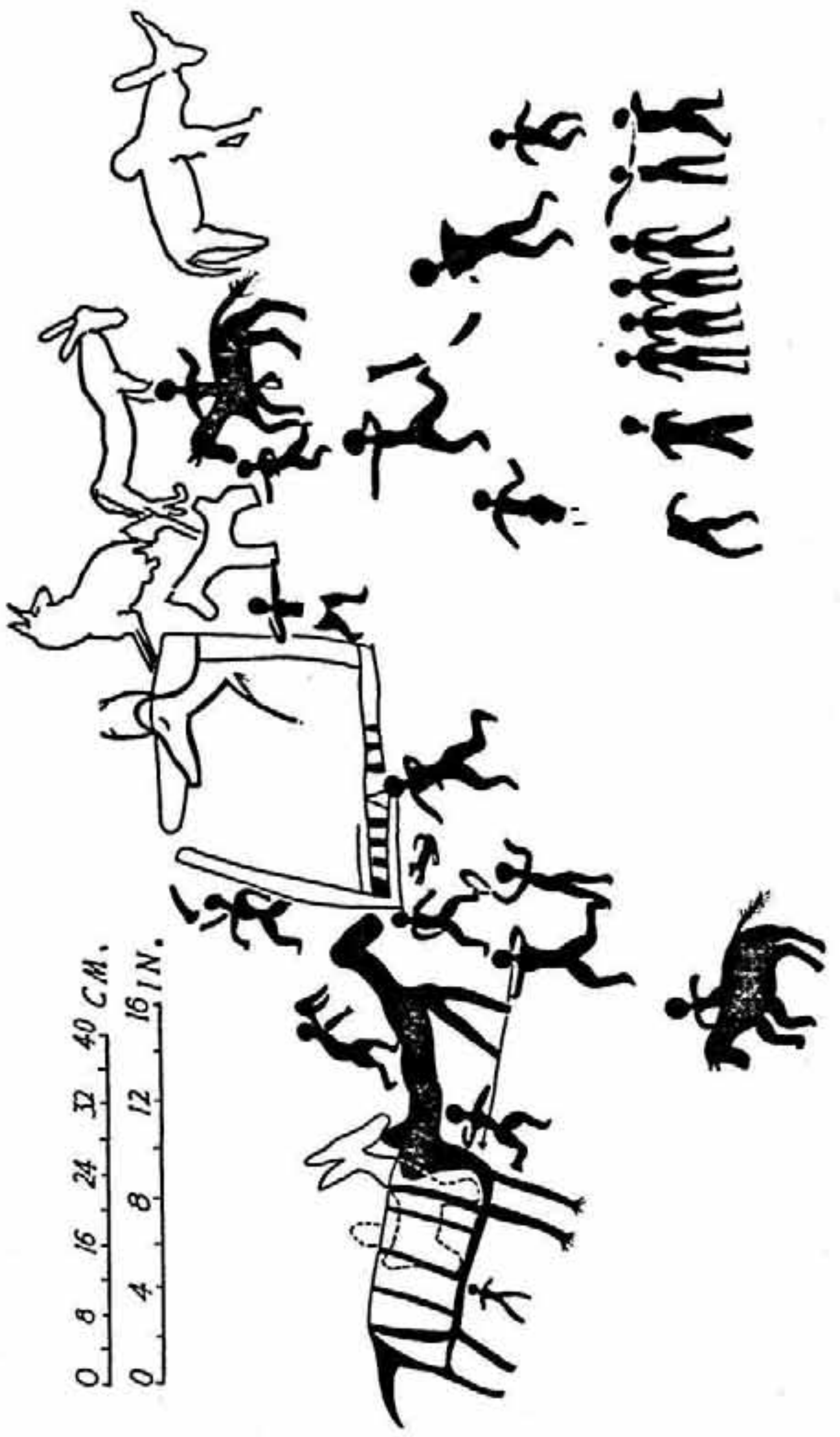


FIG. 9. *Itar-Pahar: painting in rock-shelter*

Rock-shelter 5 was found to be divided into two rooms, one measuring 4 X 2.6 and other 3 X 2 m.

The paintings executed in deep-red colour were found superimposed over the earlier ones in white; they showed scenes of hunting and fishing. The animals included the deer, wild buffalo, dog, rhinoceros and wild ass. The human figures, some of them wearing a half-skirt of skin, were realistic.

The paintings in Rock-shelter 1 depicted both human and animal figures along with the tree and sun-symbol, while those in Rock-shelter 10 (fig. 9) portrayed a fighting-scene with men engaged in throwing a spear at each other or riding a horse or running or being chased by a dog. Traces of an earlier coat of white below the red film were also noticed here.

Four factory-sites of the Middle and Late Stone Age tools were located between Rock-shelters 1 and 3, one of them yielding as many as twentyfour tools, one hundred twentysix flakes and nineteen cores within an area of 2 m. square. Amongst the tools, blades and blade-points were more frequent than scrapers made on asymmetrical flakes, and borers and arrowheads. The Late Stone Age tools consisted of parallel-sided blades, lunates and obliquely-cut points, fluted cores being a distinctive feature of the industry. Such implements were also found in the occupation-debris in Rock-shelters 2 and 3.

36. EXPLORATION IN DISTRICT REWA AND SIDHI.—Shri Nissar Ahmed of the Deccan College Post-graduate and Research Institute, Poona, surveyed the Son and its tributaries, the Banas, Mahan, Gopat and Mohan, in Districts Rewa and Sidhi.

Following the downward course of the Son, a few Early Stone Age tools in a highly-rolled condition were picked up at Bhanwarsena situated in District Rewa. About 100 m. ahead, near Shikarganj, a good section with bottom upwards, 1 .21-m. thick rock, 6-09-m. thick cemented gravel and 4.60-m. thick silt was noticed, but there were no tools. The *nullahs* between the Banas and Mohan yielded Early Stone Age tools, including a fresh ovate and some half-finished tools and flakes. Further downstream, about 100 km. away, more tools including a fresh handaxe, were found at Bardhi in District Sidhi. Proceeding southwards, two sections on the left bank of the Mohan were noticed; one of them showed 1 .50-m. thick rock, 0-60-m. thick sand-gravel and 7.60-m. thick silt, the corresponding measurements in the other section being 1.20 m., 1 .50 m. and 6. 10 m. A chopper was discovered *in situ* in one of the sections. An interesting feature of the Son valley was the frequent occurrence of laterite formation.

37. EXCAVATION AT ERAN, DISTRICT SAGAR.—In continuation of previous year's work (1960-61, p. 17), the University of Saugor, under the direction of Professor K. D. Bajpai, assisted by Shri U. V. Singh, resumed excavation at Eran.

Seven trenches, labelled ERN-4 to ERN-10, were taken up for excavation on different mounds. ERN-4, measuring 24.70 X 5-50 m., on one of the southernmost mounds, revealed structural remains of Period III only, below which was found some sort of a clay bund to protect the structure. ERN-5, at the northern slope of the main mound, was found much disturbed. In ERN-6 remains of Periods I and III were encountered, the former represented by a fire-place, the sealing layer of which contained mixed material of Periods I and II. In ERN-7, situated at the highest point of the mound, to the west to ERN-2, remains of all the four Periods were met within a 8.50.m. thick deposit. With a view to correlating the sequence of the main mound with that obtained in the smaller ones outside the fortification, a long trench measuring 36.60 X 5.50 m., being an extension of ERN-7, was partially dug, exposing in one of the sectors a mud defence-wall to a depth of 4.60 m., about 9 m. to the south of the stone fortification-wall, with

chalcolithic pottery in its core. In ERN-8, to the west of the Daunavira mound or ERN-1, only remains of Period III were exposed. ERN-9, 24. 70 X 5 . 50 m., was laid out on the Daunavira mound, which was found to be rich in antiquities. In ERN-10, measuring 11 .90 X 5.50 m., located in the vicinity of Pahalejpur village near Goparaja's pillar, only scanty remains were evidenced.

This year's excavation confirmed the sequence obtained last year both on the main mound and outside the fortifications. In Periods I, III and IV, however, additional structural phases were added. The distinctive features of each Period are summarized below.

Period I was characterized by the presence of microliths (pl. XXXIX B) and black-and-red, thick grey, thin plain grey and black-painted red wares (pl. XL B). In addition, painted sherds of the thick grey and white-painted black-and-red and red ware(pl. XLA) and two fragmentary channel-spouts in red ware (pl. XLI A) were also obtained. One sherd showed painting in light-red over dull-grey interior. None of the thin grey ware sherds, however, was painted. The only evidence of structural activity relating to this Period outside the main mound was found at ERN-6 in the form of a fire-place (pl. XXXIX A). The other finds of the Period included a signet-ring, thin circular gold piece (pl. XLI B), a few stone objects, beads of steatite, carnelian and shell, stone balls and a fragment of a bone pin.

Period II was marked by the disappearance of most of the earlier wares excepting the plain black-and-red ware, which continued throughout the occupation of this Period. A few sherds of the thick grey were also occurred but were confined to the lowest level alone. No sherd of the Northern Black Polished Ware was obtained this year, but one sherd had been discovered last year. The associated finds included early punched-marked and tribal coins, terracotta human and animal figurines (pl. XLII), beads, variously of terra-cotta, stone and shell, fragments of bone pins and shell bangles. The use of iron was known.

In Period III, which showed four structural phases, the black-and-red ware completely disappeared and was replaced in the upper three phases by the Red Polished Ware. In the earliest phase, a hoard of three thousand two hundred and sixtyeight punch-marked coins, ascribable to *circa* 200 B.C., was discovered. Other coins were of the Nagas, the Kshatrapas, Ramagupta (below, p. 94) and the Indo-Sassanian rulers.

Several terracotta female figurines, stylistically belonging to the early Gupta period, were also found. Other finds included beads of terracotta, carnelian, glass, paste, chalcedony, crystal and shell, a small stone image of Mahishamardini, miscellaneous terracotta, copper, iron and stone objects, shell bangles, bone pins and a silver ring. An outstanding find of the Period was a circular clay sealing depicting Gaja-Lakshmi in the upper half and below an inscription of two lines in the early Gupta characters, reading ***Airikine Gomika-vishay-adhikara[nasya]*** **and a copper piece showing the design of a *kirtti-mukha* (pl. XLI C).**

In Period IV an additional structural phase was brought to light this year, bringing the total to five. The massive stone fortification-wall was constructed in the late phase of this Period. The finds of the Period included bangles of glass, lac and shell, miscellaneous terracotta, stone, iron and copper objects and beads of glass, terracotta, jasper and carnelian.

MADRAS

38. EXPLORATION IN DISTRICT CHINGLEPUT.—The Department of Ancient History and Archaeology, University of Madras, re-explored the well-known site, Attirambakkam

(Attiramphakkam), and brought to light scrapers, blades, points, flakes with prepared platforms and fine marginal retouch and cores of fine-grained quartzite. At Sriperumbudur, known to yield plant fossil-remains, a few implements of the Early Stone Age were collected, besides a large number of worked flakes, found strewn over this area. The implements included a broken, but well-shaped, handaxe of the mid-Acheulian type, a U-shaped cleaver with a concave-like working-edge, a discoid and a core. Evidence of prepared platforms and marginal retouch on some flakes was noticed.

39. EXPLORATION IN DISTRICT COIMBATORE.—Shri V.N. Srinivasa Desikan of the Southern Circle of the Survey discovered: urn-burial sites at Karumandichellipalaiyam; cairn-circles at Kadirampatti, Pandiyampalaiyam, Nichchampalaiyam, Toranavavi, Vettayankinar and Chinnekavundanvalasu in Taluk Erode, and Marayapalaiyam, Nallur and Panaiyampalli in Taluk Gobichettipalayam; megalithic cist-burials at Elavamalai and Nichchampalaiyam in Taluk Erode; and three menhirs, each circumscribed by a single stone circle, at Nichchampalaiyam. Sites with the Russet-coated Painted Ware were located at Perundurai, Elavamalai and Tingalur in Taluk Erode. Tamil inscriptions of the medieval period were noticed in the Vishnu and Siva temples at Kunnathur and also at the Siva temple at Vellimpadi in the same Taluk.

40. EXPLORATION IN DISTRICT SALEM.—The Department of Ancient History and Archaeology, University of Madras, explored an early historical site at Mohanur and found the Russet-coated Painted and the megalithic Black-and-red Wares, besides the all-black and red wares and shell bangles and beads. Some urn-burials without any megali thic appendage were also noticed.

Shri A. V. N. Sharma of the Government Museum, Madras, also explored the same site and collected the same type of pottery. The occurrence of the Russet-coated Painted Ware in this District is quite significant.

The adjacent bed of the Cauvery near Kaliammankoil yielded four neolithic celts.

41. EXPLORATION IN DISTRICT SOUTH ARCOT.—The Department of Ancient History and Archaeology, University of Madras, re-explored Sengamedu and found some urn-burials without the bounding stone circles and a finely-polished neolithic celt with a pointed butt.

At Erumanur, about 16 km. east of Sengamedu, a large number of urn-burials without any megalithic appendage were located.

At Mangalampettai, 13 km. north of Vriddhachalam, a few megalithic stone circles were found. The circle-stones are being quarried away for road-construction

42. EXPLORATION IN DISTRICT THANJAVUR.—Shri K. V. Raman of the Southern Circle of the Survey explored the Cauvery basin near its mouth and brought to light about forty important early historical and medieval sites near about Kaveripattinam, the ancient port-capital of the Cholas. The early historical sites were located all along the beach to the extent of 8 km. from Neidavasal on the north, and Vanagiri on the south, including the present hamlet of Kaveripattinam. It is significant to note that all the three places find mention in the Tamil classics. The sites on the sea-coast are covered by sand and are exposed only where the sea-waves have eroded the underlying deposits. These coastal sites can easily be dated to the beginning of the Christian era, if not earlier, as evidenced by the occurrence of the megalithic Black-and-red and Rouletted Wares and a variety of beads of semi-precious stones like jasper, chalcedony, agate and carnelian (pl. XLIV A). Some important finds were rare square copper coins obtained from the coastal site at Vanagiri, besides a few from Neidavasal (pl. XLIV B). Three such coins, with a standing

tiger with an uplifted tail on one side and an elephant on the other side (pl. XLV A), were found. One of the coins showed what appeared to be a fish instead of the elephant. The square copper coins with tiger-emblem are unique and can perhaps be ascribed to the early Cholas who had the tiger as their insignia.

Another notable find was a Roman coin of copper (pl. XLV B) from Velliyan-Irruppu, literally meaning 'the abode of white men'. The Tamil epics refer to the existence of a settlement of Yavanas (Romans) at Kaveripattanam, the great emporium of trade.

About 200 m. west of the sea, in an open field at Kilaiyur village, a huge brick wall, over 3 m. in width, built of unusually large-sized bricks (61 X 40. 5 X 7.7 cm.) was found about 1 .20 m. below the present ground-level (pl. XLVI1 A). The site is popularly known as Mangaimadam or 'nunnery', and it is interesting to note that according to the Tamil classics, there were Buddhist monasteries and nunneries at Kaveripattanam.

A number of similar early and medieval habitation-sites were found dotted in close proximity right from Kaveripattanam on the east to Radhanallur on the west. They include Kilaiyur, Melaiyur, Vellaian-Iruppu, Sayavanam, Pallavanesvaram, Kilpperumpallam, Melpperumpallam, Manigramam, Radhanallur, Tiruvengadu and Madhavimanai at Tirukkadavur, which also contained a brick temple with Chola features (pl. XLVII B). Many of these sites yielded the megalithic Black-and-red Ware and bright red-slipped ware. Rouletted Ware (pl. XLVI A) of rather inferior variety was found at Manigramam, a site mentioned in later Tamil inscriptions as a suburb of Kaveripattanam, where a great merchant-guild flourished. A number of medieval copper coins (pl. XLV C) belonging to the Chola period were recovered from some of these sites. The three coins from Sayavanam, mentioned as Saikkadu in the Sangam literature, are of irregular shape and have two standing figures on the obverse and a *linga* on the reverse. Three terracotta figurines, one of them in double-mould technique (pl. XLVI B), were also found.

Urn-burial sites were found at Kelpperumpaliam, Manigramam, Viramethiruppu and Vanagiri.

An extensive mound named Nandanmedu, about 9 m. in height and having a medieval Chola temple, was located on the bank of the river Tirumalairajan at village Pattisvaram in Taluk Kumbakonam. The megalithic Black-and-red Ware and the red-slipped ware were found. A little away from this mound was discovered an urn-burial site.

The Department of Ancient History and Archaeology, University of Madras, discovered a Vaishnava temple of the late Chola period with a Tamil inscription at Nadankovil. The place appears to have formed part of Palaiyaru, a secondary capital of the Cholas.

An early historical habitation-site yielding the megalithic Black-and-red Ware and other associated wares, terracotta ring-wells and medieval crude red ware and dilapidated burnt brick structures was discovered at Nandanmedu, 8 km. from Kumbakonam on the bank of Tirumalairajan. The river-bed and the sections revealed a large number of urn-burials without megalithic appendage.

43. EXPLORATION IN DISTRICT TIRUCHCHIRAPPALLI.—Megalithic monuments, largely consisting of stone circles, cairn-circles and dolmens, were located by the University of Madras about 56 km. from Tiruchchirappalli on the trunk road to Madras and at Manmangalam, 8 km. from Karur on the Karur-Pugalur road. At Kottampatti, a large number of urn-burials and cists were found.

At Pudukkottai, some 45 km. from Tiruchchirappalli on the road to Karur, was located an extensive mound showing traces of mud-fortification. The ceramic contents

included the megalithic Black-and-red Ware, the Russet-coated Painted Ware and the all-black ware as also later wares represented by ill-fired coarse pottery.

An isolated image of a Jaina *tirthankara* was found lying in a field at Puliyur.

44. EXCAVATION AT TIRUKKAMBULIYUR, DISTRICT TIRUCHCHIRAPPALLI.—The Department of Ancient History and Archaeology, University of Madras, undertook excavation at Tirukkambuliyur, situated on the banks of Cauvery river 53 km. west of Tiruchchirappalli on the road to Karur. The extensive mound, covering an area of about 20 hectares, is cut into two parts by a cart-track, the northern one being larger and rising to a height of 3 to 3 .65 m. above the surrounding plain.

Three trenches, TKP-1 (pl. XLIII A), TKP-3 and TKP-4, were laid out on the northern part of the mound and one, TKP-2, on the south-western part. All the cuttings were carried down to the natural soil which was encountered at 4 to 4 .50 m. below surface on the northern mound and some 1 .50 to 1.80 m. on the south-western mound.

Period I, represented by 9.75-m. thick deposit, was characterized by the Russet-coated Painted Ware showing both wavy and rectilinear designs. The fabrics of the Ware could be compared with the megalithic Black-and-red Ware at its best. The most common types met with were the deep bowl, dish and globular pot with a long neck. On many examples painting could be seen on both sides of the vessel. Associated with this was the Black-and-red Ware, which in earliest levels occurred with a lesser frequency than the Russet-coated Painted Ware but gradually became the dominant industry of the Period. A polished black ware of similar fabric and a decorated ware showing incised or impressed designs were also in use. In the later levels of this Period was found a fine red-slipped pottery, signifying new influences. Other important finds included beads of glass and paste in various shapes, shell bangles, plain or decorated, iron objects and a few terracotta objects. No structures were encountered in the limited area under excavation.

Period II was characterized by the gradual reduction in the use of the Black-and-red Ware and the emergence and wider use of the fine red-slipped pottery. A gradual devolution in the former showing a thicker and coarser fabric but in the same shapes was also noticed. Alongside the red-slipped ware also occurred an unslipped red ware with coarser texture and having different types of vases with thick and out-turned or flaring rims, sometimes decorated with incised designs. Another notable type in this ware was the wide-mouthed deep bowl with flaring sides tapering to a pointed or truncated base, reminiscent of the Kushan bowls of north Indian sites. Other finds of the Period included terracotta human and animal figurines, glass and shell bangles, beads of glass, paste and semi-precious stones, iron and copper objects and a few copper coins.

Period III was marked by the occurrence of the coarse ill-fired red-slipped and un-slipped pottery, the latter in greater proportion. It was represented by the round-bellied pot with a thick rim, decorated on the neck and body, the carinated cooking vessel, the lid-*cum*-bowl and the jar with a wide mouth. The associated finds comprised large number of beads of glass, paste and other materials, bangles of glass and shell, copper objects including an antimony-rod, a few corroded coins and a few iron and terracotta objects. Some structures, both of mud bricks and baked bricks, were also noticed in three of the trenches. One of them was circular on plan and could have been a hut or storage-granary (pl. XLIII B).

MAHARASHTRA

45. EXPLORATION IN DISTRICTS AHMADNAGAR AND NASIK.—Under a research-programme mentioned above (p. 22), Dr. A. P. Khatri undertook a systematic survey of

the Godavari and some of its tributaries and nullahs. The main focus of attention was on three parts of the valley, viz. the areas between Pravara-Sangam to Krishnapur and Paithan to Mungi in District Ahmadnagar and the riverine course between Nasik and Nandur-Madmeswar in District Nasik. In the area between Paithan to Mungi several implementiferious deposits were explored in the main valley of the Godavari and its three tributaries called the Khatkali-Nadi, Kasichi-Nadi and Naini-Nadi. In the same area was also located a fossiliferious deposit, from which was extracted a piece of a long bone belonging to an extinct mammal.

The Nasik-Nandur-Madmeswar area also contained tool-bearing conglomerate deposits and presented good sections at certain places for the study of Pleistocene stratigraphy comparable with the valley of the Narmada. The river Kadva was also surveyed along with the Vaintha nullah which joins the former at Nipad. A large number of Early and Middle Stone Age tools collected from nearly thirty sites during the course of this survey for making a comparative study with the implements from the Narmada.

A detailed survey of the Pleistocene deposits of the Pravara river near Nevasa in District Ahmadnagar was undertaken by Dr. Z. D. Ansari and Shri S. N. Rajguru of the Deccan College Post-graduate and Research Institute, Poona. As a result, the profile showing the nature of various deposits on the left bank of the river near Hathi well, about 3 km. upstream from Nevasa, was prepared.

During the survey a patch of coarse gravel, not well-cemented, was found to rest on the trap-rock by the side of a cart-track, 60 km. from the river and about 9 m. above the present water-level. The constituents of the gravel were large nodules of chalcedony, pebbles of dolerite, basalt, quartz, zeolites, sand and a few tools of the Early Stone Age. The nature of this gravel is very similar to gravel I on the river-bank, near Hathi well, which also yielded a number of tools of the same assemblage. From the nature of these two gravels and the difference in their levels, it appears that the gravel by the roadside may be a remnant of the terrace-deposits of the river.

A large number of animal fossils, all mineralized, were also collected from the loose gravel in the flood-plain of the river. Most of them were parts of leg bones and were cut probably for extracting the marrow.

46. EXCAVATION AT KAUNDANPUR, DISTRICT AMRAOTI.—The Department of Archaeology, Government of Maharashtra, under Dr. Moreshwar G. Dikshit of the Nagpur University, undertook a small-scale excavation at Kaundanpur situated on the northern bank of the river Wardha and identified with Kaundinyapura, the traditionally-famous capital of ancient Vidarbha mentioned in the Epics.

The excavation, though limited in nature, revealed a succession of six Periods, a sequence now known from several other sites in the Deccan.

Period I, the earliest at the site on the present showing, yielded traces of a megalithic (?) culture, dominated by the occurrence of black-and-red and grit-tempered wares, the latter represented by vases with flaring rims. Among the associated objects were a large number of etched carnelian beads, decorated with patterns known from several megalithic tombs in south India, the favourite designs being short radial strokes on circular-lenticular beads and wavy bands between marginal lines or long barrel circular beads.

Period II was further characterized by the use of the black-and-red ware and was marked by a small sterile layer, possibly of a flood-deposit from the adjoining river.

Period III yielded a few sherds of the Northern Black Polished Ware, punch-marke copper coins, typical ear-reels of polished jasper and antimony-rods of bone and arrow-heads.

Period IV was associated with a Satavahana coin and a clay sealing impressed with the figure of a peacock standing and with the legend *Dhanaputasa* in Brahmi characters of *circa* first century A.D. A noteworthy find of the Period was a sherd of the Russet-coated Painted Ware. Other finds included legged querns. A brick structure was also exposed.

Period V showed a late phase of the Satavahana age. The occupational strata, however, were found to be much disturbed by the foundations of late medieval buildings and by pits.

Period VI was represented by large buildings of the late medieval age, showing stone-built foundations with brick superstructures and a bed of pebbles set in lime as their floors. There were indications of these floors having been repaired at least three times. The pottery comprised domical lids, cooking *handis*, platters and jar-covers. Two pieces of stratified glass bangles and an iron nail-parer and lock were also found.

47. EXPLORATION IN DISTRICT CHANDA.—Continuing his earlier work (1960-61, p. 22), Shri L. K. Srinivasan of the South-eastern Circle of the Survey explored the Jharpat river-valley to the east of the town of Chanda round about the site of Papamiya-Tekdi. The nullahs which join the river were surveyed up to the points of their origin and a number of unifacial pebble tools along with bifacial handaxes and cleavers (pl. XLIX A) were collected. Typical specimens of the blade-burin industry (fig. 10; pl. XLIX B) were also found in the locality.

Of unusual interest was a giant lunate-like half-ovate made on a big lump of jasper (pl. LA) with the arc-side carefully trimmed and showing flake-scars.

The general stratigraphic sequence of the area around Papamiya-Tekdi from bottom upwards was as follows: light-yellowish sandstone, being the bed-rock of the river, overlain with variegated shale-beds; conglomerate bed containing pebbles and boulders of the above-mentioned rock-types; and rubble-gravel debris, from which most of the tools found in the bed of the nullahs appear to have been washed out. This bed of rubble-gravel was found to contain pieces of silicified wood-fossil. The tools noticed in this area are mainly on shale. It may, however, be noted that in the sections of some of the nullahs, the rubble-gravel debris was found resting immediately over the sandstone, the conglomerate-bed being conspicuous by its absence.

Extending his exploration to the river-valleys of the Pranhita, Indravati and Kathani, a tributary of the Wainganga, Shri Srinivasan discovered a number of sites yielding Early Stone Age chopper-chopping pebble tools (pl. L B), the sites being located near the following villages: Abanpalli, Arkapalli, Charpalli, Chinchgundi, Dhamaram, Gadahiri, Golakhurji, Indaram, Jhamela, Kanepalli, Kathapalli, Kolpalli, Kottur, Lakameta, Lingampalli, Mahagaon-Budrukh, Marigudem, Mudumtorna, Nandigaon,' Pusukpalli, Rajpalli, Repanpalli, Timram, Timramith, Virampalli and Wangepalli, all in the Pranhita valley; Bhamragarh in the Indravati valley; and Dhanora-Darachi, Rajoli and Salebhatti in the Kathani valley.

The pebble tools from Dhanora occurred along the gullies cut through lateritic formations, a few of them actually showing lateritic stains.

Sites yielding microliths were noticed near Dhanora-Warkekasa, Mahagaon-Buzruk (pi. LI A) and Wangepalli and on the western bank of the Jharpat, about 3 km. east of Chanda railway-station, close to Papamiya-Tekdi (pi. LI B). The last-named site is very extensive and the microlithic tools were found to occur just below the top humus-layer, varying from 8 to 15 cm. in thickness. The microlithic tools from Dhanora and Warkekasa were also found in the same stratigraphic horizon.

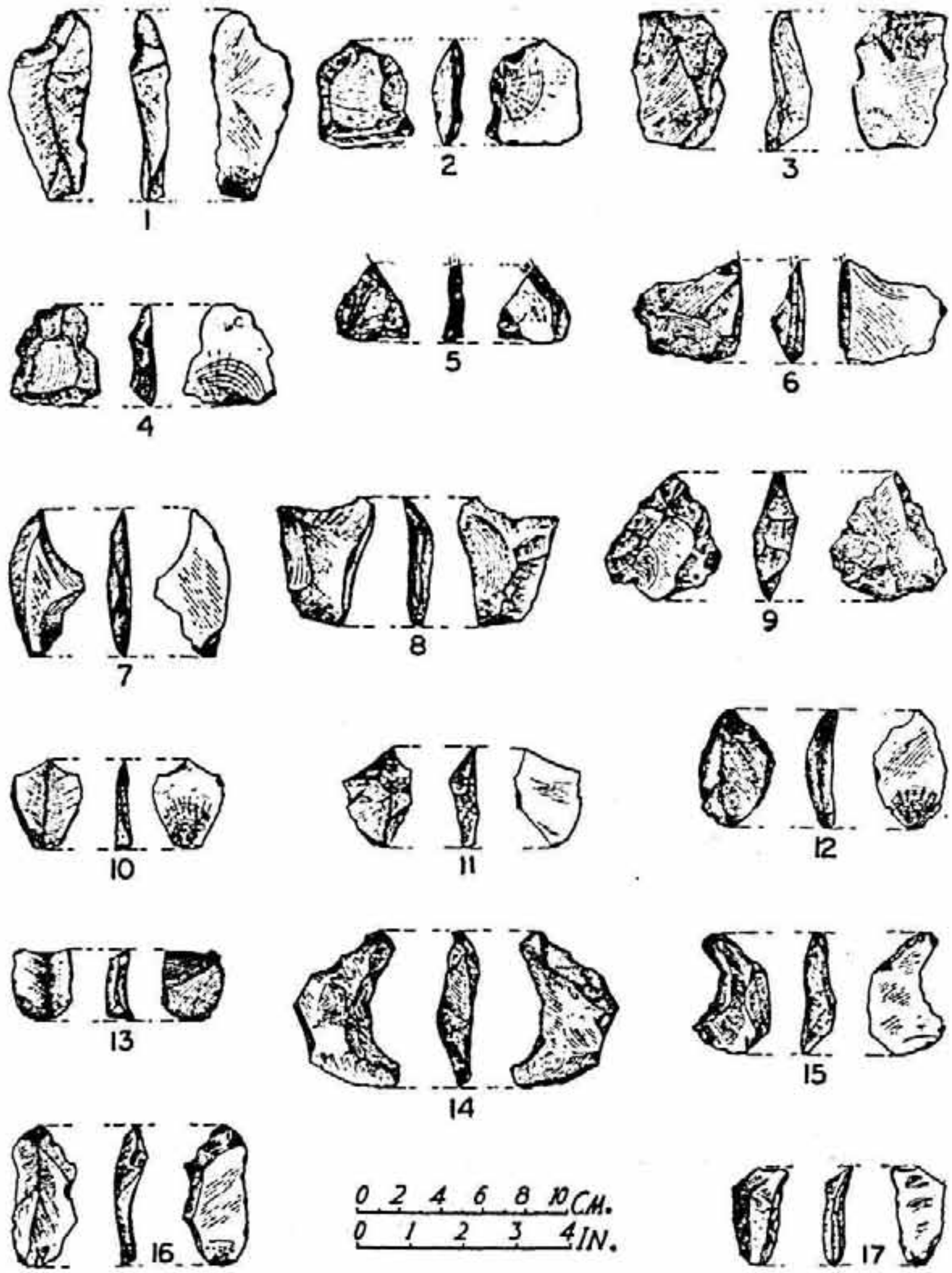


FIG. 10. *Papamiya-Tekdi: tools of the blade-burin industry*

48. EXPLORATION IN DISTRICT DHULIA.—In the course of his exploration of the cliff-sections of the feeders of the Tapti, Shri S. A. Sali of South-western Circle of the Survey collected: a few Early Stone Age tools from the lowest gravels, and microliths, chiefly on chalcedony, including a fluted core and a parallel-sided blade, from the top most gravel, at Bhadne (pl. LII A); rolled handaxes, cleavers, choppers, discoids and ovates of the Abbevilleo-Acheulian complex at Bhadne and Yesar; scraper-point assemblage on jasper, seemingly of the Middle Stone Age, from the lowest gravel at Gondas; small-sized tools of jasper, chalcedony and agate, including irregularly-fluted cores and parallel-sided blade-flakes, from the middle gravel and microlithic tools, largely on chalcedony, finely-fluted cores, parallel-sided blades and flakes with a couple of molluscan shells from the top deposits at Gondas; and fresh as well as rolled Early Stone Age tools from gravel-clay *in situ* at Nandvan. At Bhadne, a long fossil joint-bone of an animal was also recovered from the red gravel in association with Middle Stone Age tools.

Tools seemingly of the Middle Stone Age were collected from gravels *in situ* at Chhadvel and Perajpur.

From the red gravel-deposit at Dhablapada was recovered a broken animal-tooth. Not far away from this was discovered an open camp-site with Early Stone Age tools, which were also picked up at Khandbara.

At Bhadvad-Khurd, a sequence of deposits from the late Acheulian to the Late Stone Age was noticed with handaxes, cleavers, choppers and scrapers in the lowest gravel: a small handaxe, another heavily-rolled handaxe, a small Acheulian handaxe, a massive core and a flake overlying the next brown clay; irregular cores, scrapers, points and flakes of the Middle Stone Age complex in the next higher red gravel; and tools of the Late Stone Age on jasper and agate in the top gravel.

Middle Stone Age sites were discovered at Akrala, Amaltha, Aria, Bhadvi, Chakla, Kharda-Kund, Manjra, Perajpur, Saitana, Umarada-Khurd, Vaindana and Varvad. A molluscan shell was also obtained along with the tools from the gravel-bed at Amaltha. At Chaupala, a large animal scapula with Late Stone Age tools, molluscan shells and charcoal-bits were recovered from the ashy-grey silt (pl. LII B). Microliths were collected from the yellow silt of the nullah-sections of Bahyand, Malkhand and Nyahali and from Asana, Ashtana, Bahyana, Dhandhana, Dhaner, Ghotana, Karli, Khokrala, Malangaon-pada, Nibhel, Ranala, Saturkha, Vadbara, Vankuta and Varvad.

Chalcolithic habitation-sites were discovered at Amaltha, Bahyana, Baldana, Bhadne, Bhadvad-Khurd, Kandhra, Kaotho, Nyahali, Osrel, Saitana, Vaindana and Yesar. These sites yielded the familiar typical painted wares, including the Jorwe Ware, besides the burnished grey and the coarse gritty wares, microliths, flakes of hard basaltic trap, hammer-stones, saddle-querns, animal bones, etc. At Amaltha were also found black-and-red and red wares of the early historical period.

Chalcolithic burial-remains were discovered at Amaltha, Baldana, Bhadvad-Khurd, Chhadvel, Gondas, Nimbhel, Osrel, Saitana and Vaindana.

A severely-plain cave at Bhadvi, a squarish stone structure (thirteenth-fourteenth century) at Ghotana, an image of Brahma of *circa* twelfth century at Saitana and a step-well and sculptures of Vishnu, Siva, Lakshmi and Mahishasuramardini of *circa* twelfth century at Ranale were also noticed in the same District.

49. EXCAVATION AT JUNAPANI, DISTRICT NAGPUR.—The Excavations Branch of the Survey, under Shri B. K. Thapar, undertook excavation of some of the megalithic tombs at Junapani, situated about 11 km. north-west of Nagpur, along the highway to Katol. The site had been explored as early as 1867, when 'some half a dozen barrows' were also excavated. In view, however, of the problem, alike of spatial distribution,

origin and chronology, posed by current research in progress and the mass of information now available on Indian megaliths, it was thought desirable to open a few of the megaliths again in this region which forms the northern fringe of their distribution in the Peninsula.

The megalithic site, covering an overall area of about one-sixth of a square kilometre, contains over one hundred and fifty monuments, belonging essentially to the same type, viz. the cairn-circle of which the structural details are as follows. A circle of undressed trap boulders with a varying diameter of 7 to 18 m. was formed. In the centre was heaped sticky black clay, which also served as a filling for the shallow grave-pit, if made. Within this domical filling, which tailed off to the base of the circle-stones, were arranged the funerary deposits. Against the fall of this tumulus and partly on the top notably in the truncated central area was placed stone rubble which, in some cases, overrode the circle-stones and formed a complete cairn (pl. LIII A). In the rubble packing too were placed funerary objects, possibly to mark the last ceremony of the burial. A noteworthy feature of some of the cairn-circles is the occurrence of shallow circular depressions or cup-marks arranged in regular rows on some selected circle-stones (pl. LIII B), similar to those on the barrows in Great Britain.

Three megaliths were taken up for excavation.

Megalith I consisted of a circle of undressed boulders with an average external diameter of 15 m. A couple of circle-stones were, however, missing on the northern side. In the northern half of the circle was an irregular shallow pit (marked A on pi. LIV A), measuring 8'80 by 3.50 m., with the longer axis roughly east-west. On its floor as also in the clay filling above were placed funerary deposits, comprising pottery, iron objects and gold ornaments. A stone pestle along with some iron objects was also found in the rubble packing. Three ancillary pits in the southern half of the circle (marked B, C and D on pl. LIV A), two of them being very shallow, contained human and animal skeletal remains. With the former, which included crushed part of the skull and some long bones, were also found some pots towards the head and fortyfour carnelian beads, twenty-four of which were etched in white. The latter pit (marked D on pl. LIV A) comprised bones of *Equidae* family.

Megalith II consisted of a double circle of untrimmed boulders with an average external diameter of 10.21 m. In the north-eastern quadrant was found a crushed pot entombed within the .33-m. high cairn. Apart from this the monument contained nothing.

Megalith III consisted of a circle of undressed boulders with an average external diameter of 16 m. (pl. LIV B). A noteworthy feature of the cairn was the occurrence of smaller boulders retaining the rubble packing along the fall of the clay-heap, as also that of the central truncated part, below which funerary objects, like pottery, gold ornaments, a silver stud, copper and iron objects, as also human skeletal remains, were found. Significantly enough, the gold ornaments, consisting of a bangle and a spiral ring, were found along with the latter, the bangle being worn on the radius and ulna, and the ring placed near about jaw-region. The skeletal remains were essentially fragmentary. No special grave-pit was dug into the natural trap-rock.

The funerary deposits recovered from these megaliths comprised pottery, iron and copper objects, gold ornaments and a stone pestle. In the pottery, four fabrics, viz. black-and-red, all-black and plain red wares and a ware tempered with micaceous grit can be recognized. Due to the heavy weight of the rubble packing and the deleterious action of the entombed clay, all the pots have, unfortunately, been reduced to disintegrated bits. Their shapes are thus difficult to restore at the present stage. Of unusual interest,

however, was a bowl of red ware with a hole-mouth spout and painted in black pigment with oblique strokes on the rim. Iron objects (pls. LV A and LVI A) included the axe with a cross-ring fastener, dagger, spear, lance, chisel-shaped implement, ladle, etc. Some of these recall those obtained from Adichanallur. Of copper, six anklets and a bell with an iron tongue were found (pl. LVI B). The gold objects (pl. LVI C) comprised a necklace with three annular disks having two perforations possibly for stringing; a bangle made of fine disks threaded on a copper wire with hooked ends and a spiral ring. The solitary stone object was a sandstone pestle (pl. LV B).

The above assemblage indicates a rich iron-working culture similar to that obtaining in the megaliths of the lower Peninsula.

50. EXPLORATION IN DISTRICT SATARA.—In the course of his exploration of the area in and around Aundh, the Museum Assistant of Aundh Museum collected a large number of antiquities, comprising Early Stone Age tools, microliths, terracotta figurines, shell and glass bangles and broken stone images.

MYSORE

51. EXPLORATION IN DISTRICT BIJAPUR.—In continuation of his exploration in Taluk Muddebihal (1960-61, p. 28) Shri P. Narayanababu of the South-western Circle of the Survey discovered microliths at Advi-Hulagbal, Arasonal, Bachihal, Bhangargund, Chevanbhavi, Donkamedu, Fatehpur, Gonal, Hokrani, Inachgal, Jakkiral, Jengmural, Kanikeri, Kavidimatti, Kuntogi, Masangeri, Mavinbhayi, Nagur, Shivpur and Siddapur. At all these sites, a large number of fluted cores, parallel-sided blades and flakes were found. Some of the blades showed occasional retouch at their working edges.

At Nagur, remains of the chalcolithic and later periods were also noticed. Megalithic stone circles were located at Budhihal and Khilarhatti. Remains of the early historical period were noticed at Alur, Inachgal, Kavidimatti, Kuntogi, Nalvatwad and Rakasgi.

52. EXPLORATION IN DISTRICT DHARWAR.—In the course of his exploration in Taluk Shirhat (1960-61, p. 28), Shri M. S. Nagaraja Rao of the South-western Circle of the Survey collected some Early Stone Age tools, mostly rolled, near Konchigeri.

Megalithic cist-circles, 3 to 3.65 m. in diameter, were discovered at Adrahalli, Devihal and Sogival.

Early historical sites were located at Aderkatti, Battur, Holalapur, Hullur, Jirmadapur, Lakshmeshwar, Nave-Bavnur, Nittur, Shankhadal and Yevatti. Black-and-red ware, red-slipped ware and the Russet-coated Painted Ware and areca-nut-shaped beads, along with some polished stone axes, were found at these sites. At Jirmadapur and Nittur were also picked up a few handaxes of the Early Stone Age. At Battur a few sherds of grey-ware urns, typical of Brahmagiri I, were also found.

Remains of temples of *circa* twelfth century were noticed at Doddur, Lakshmeswar, Tenginbavnur and Yelvatti.

53. EXPLORATION IN DISTRICT MYSORE.—Shri C. Krishnamurti of the Southern Circle of the Survey collected a few stray polished stone axes at Bandahalli, Honnur, Minya and Rampura in Taluk Kollegal. He also discovered sites yielding the Black-and-red and Russet-coated Painted Wares at Ballur, Booditittu, Chikkamalapura, Ganganadoddi, Honnur, Huggiyam, Huthu, Kandaiahnapalya, Lakkundi, Lokkanahalli and P. G. Palya in Taluk Kollegal and Panjanahalli, Talale and Veeranapura in Taluk Gundlupet. Megalithic cist-burials were found at Alambadi, Arabikere, Avalanayakanur, Bandahalli,

Basappanadoddi, Bhadraiahanahalli, Bodamuthanur, Bylur, Chandanapalya, Chengavadi, Chikkamalapura, Chinchahalli, Dinahalli,Doddalattur, Gajanur, Ganagamangala, Gopinatham, Gulya, Gundimala, Hosadoddi, Huttur, Kallidoddi, Kodanayakanadodi, Koppa, Kowdalli, Kurathinosur, Mahalinganakalle, Manchapura, Mangalli, Martahalli, Mavathur, Minya Nalluru, Ramapura, P. G. Palya, Sulikovi, Sulluvadi, Uddatti and

Veddaradoddi in Taluk Kollegal and Kodahalli and Mukahalli in Taluk Gundlupet.

54. EXCAVATION AT T. NARASIPUR, DISTRICT MYSORE.—In continuation of the earlier work (1959-60, p. 38) the Department of Archaeology, Government of Mysore, under Dr. M. Seshadri, resumed excavation at T. Narasipur.

The upper layers of the site were found to be washed away by the constant floods of the river. The sequence from top downwards was as follows : layers 2 and 3 yielded polished black ware and the megalithic Black-and-red Ware with numerous grafiitti. Layer 4, a thin deposit, yielded the painted black-on-red ware. In layer 5 were found burnished grey ware, including the typical coarse and hand-made ware and channel-spouted vases, painted with red ochre at the lip. Layer 6, the earliest occupation of the site, yielded a cream-coloured pottery besides a hand-made coarse burnished grey ware.

This season's work resulted in the discovery of a neolithic burial (pi. LVII A), the pit having been cut into layer 6. The skeleton lay in an east-west direction with its hands placed over each other on the abdomen part. Beside the head were found two pots of the hand-made cream-coloured ware together with a shallow bowl with channel-spout.

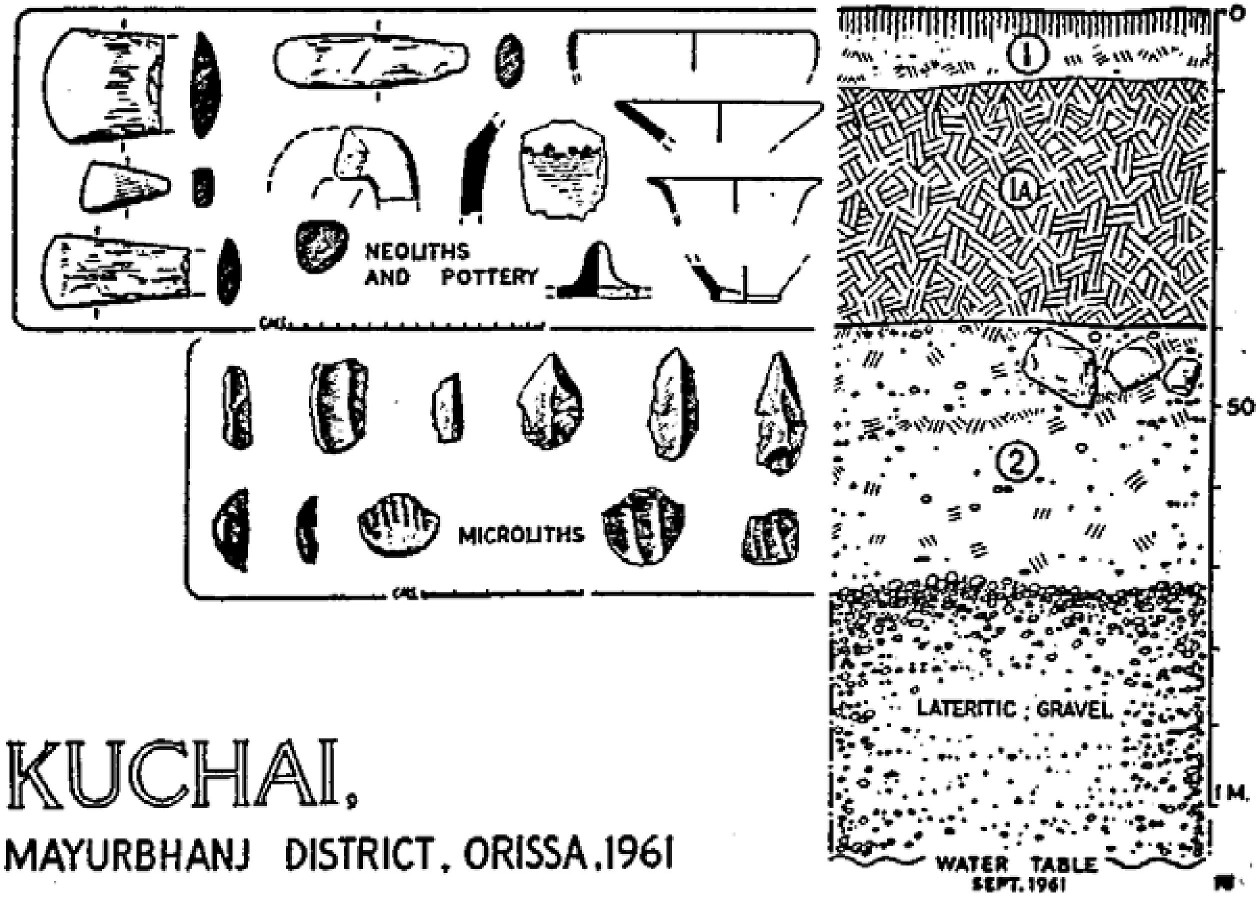


FIG. 11.

A pottery-stand with a concave top, described earlier as a neck-rest, was also found placed by the right side of the head. The so-called neck-rest was found to occur in great profusion at the site and until its association with the burial was established its function had remained unknown and conjectural.

ORISSA

55. EXCAVATION AT KUCHAI, DISTRICT MAYURBHANJ.—With a view to investigating the assemblage of the eastern neolithic culture, the Excavations Branch of the Survey, under Shri B. K. Thapar, undertook an exploratory dig at Kuchai, already known to have yielded neolithic implements. The site lies 8 km. north of the District town of Baripada along the national highway to Keonjhar, and 5 to 6 km. east of the Burhabalang river.

Excavation in a cutting, measuring 6 X 2 m. and sunk to a depth of 1 .4 m., where subsoil water was encountered (pl. LVIIB), revealed that the upper 40 to 45 cm. of a clayey deposit yielded neolithic artefacts in association with a coarse grit-tempered red ware, sometimes also slipped and showing incised or finger-tip decoration (fig. 11). Although a shouldered adze had been earlier collected from the area, the excavated artefacts were all of the butt-end variety.

From the lower deposit composed of gravel mixed with greyish earth and loose laterite were obtained microliths of an essentially non-geometric industry (fig. 11). The types included blades, points, lunates, scrapers, etc. No pottery was found in association with these tools.

On account of the high water-table, bed-rock could not be reached. An exact age as also the environmental conditions of the microlithic industry and the time-gap between it and the neolithic, therefore, still remain to be determined by further work. The special interest of this trial-trenching, however, lies in the pottery found in association with neolithic implements and in the hitherto unrecognized occurrence in Mayurbhanj of a microlithic industry of the Late Stone Age.

56. EXCAVATION AT UDAYAGIRI, DISTRICT PURL—In the course of previous conservations, the debris-accumulation on the slope of the hill in front of Caves 6 to 9 had been retained by artificial terraces faced with dry-rubble masonry. A few years back, wide masonry steps had been constructed on these terraces connecting the foot of the hill with the terrace in front of Cave 14 (Hathi-gumpha) containing the inscription of Kharavela. As all this hid the original contours of the hill and imparted to it an artificial appearance, an excavation was undertaken by Shri S. Mukherji, under Shrimati D. Mitra of the Eastern Circle of the Survey, to expose the original features of the hill as far as possible.

The excavation brought to light an ancient imposing ramp, made of laterite blocks and over 3 m. in width, rising from the foot of the hill and reaching the terrace right in front of Cave 14. The ramp was supported on either side by retaining-walls. The overall width of the ramp, including the retaining-walls, was greater near the head than at the tail, with the result that it had a wedge-shaped plan.

At a certain distance from the bottom of the ramp two walls were erected at right angles to support the debris, partly natural and partly artificial, which constituted the filling below the terrace in front of Cave 14. The dexter wall (pl. LVIII), mostly of sandstone, was prominently battered. The face-stones were extant at the lower height of the wall, but further up only the rubble-core was available. The sinister wall seems to have been constructed in two phases, respectively in sandstone and laterite, and had different but parallel alignments. Both are extant only at the point where they touch the retaining-wall of the ramp. If produced towards Cave 9 (Manchapuri), they would meet the two well-defined cut ledges of the hill.

The dexter wall was traced as far as the original steps giving access to Cave 17. Very near these steps was found the upper part of a fine sculpture in the round (pl. LIX). Made of local sandstone, it represents a woman, with heavy ornaments and with the hair artistically done in two plaits. Stylistically, the sculpture is datable to the first century B.C. Among other antiquities unearthed, particularly noteworthy were a few fragments of carved stone railings of the same age.

The filling forming the terrace in front of Cave 14 yielded a silver punch-marked coin (pl. LX A) and a heavy ear-stud of crystal, besides a large number of microliths

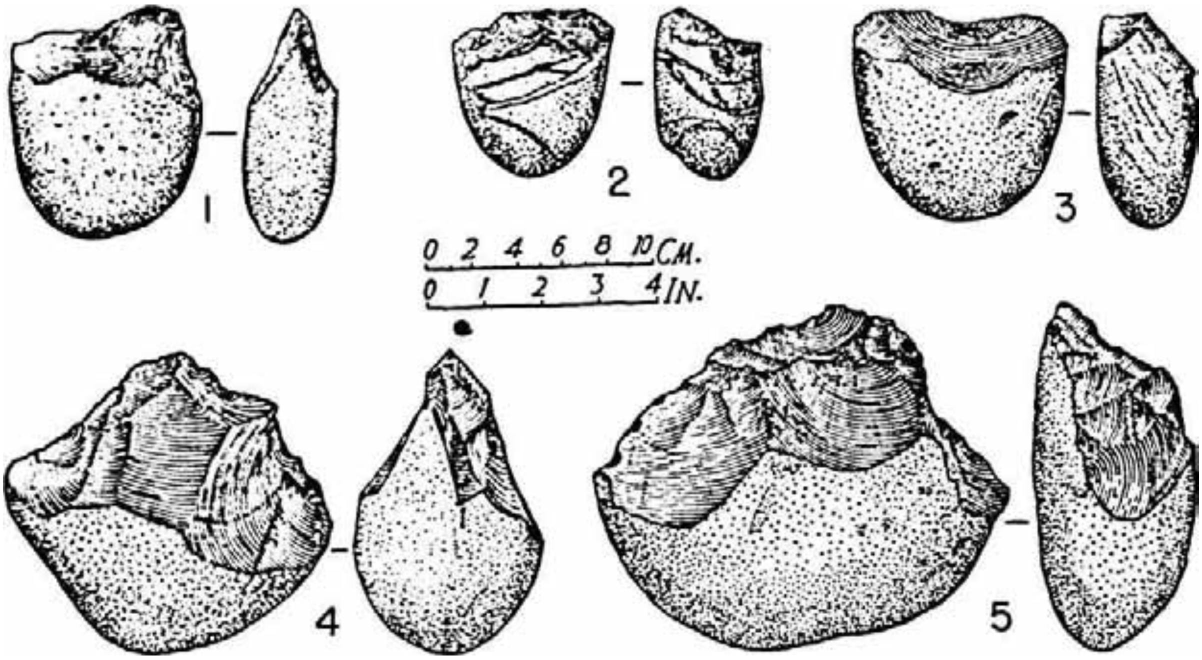


FIG. 12. *Bilaspur: Early Stone Age tools ; 3, right bank, Terrace 2, 1, 2, 4 and 5, left bank, Terrace 3*

(pi. LX B). Made on chert, crystal, agate, jasper, carnelian etc., these microliths represent such shapes as crescents, small blades, borers and a single burin. A few small fluted cores were also found.

PANJAB

57. EXPLORATION IN DISTRICT GURDASPUR.—In the course of his exploration, Shri H.K. Narain of the North-western Circle of the Survey discovered the following ancient sites yielding *inter alia* black-slipped, black-and-red and grey wares: Basrai, Chitorgarh, Dodwan, Fattupur-Dher, Hardo Rawal Khurd, Haripur, Khanuwal, Sakala and Vadala-Garanthian Sahari

Remains of the early historical period, including black-painted red ware and Red Polished Ware were found at Achal-Saheb, Rajua-Bahadurpur, Balaggam, Bhagtana-Bohorwala, Bhawani, Bijliwal, Chaurath, Dala-Chak, Dera-Baba-Nanak, Harden, Jaura-Chhitran, Kandila, Khokhar, Loharanwali, Machharai, Machharala, Mari-Panwan, Malowal, Nangal, Padda, Rahimabad, Rampur, Shahpur-Goraian and Wurpur.

58. EXPLORATION IN DISTRICT KANGRA.—The Exploration Branch of the Survey, under Shri V.D. Krishnaswami, assisted by Shri K. M. Srivastava, Shri S. P. Jain and the students of the School of Archaeology of the Survey, undertook an intensive exploration in the Sutlej valley of the region, where a stretch of about 165 square km. of land, comprised

in Districts Kangra (Panjab) and Bilaspur (Himachal Pradesh), is to be submerged under water as a result of the construction of Govind Sagar Dam on the main river (commonly known as Bhakra Dam). The exploration brought to light three terraces on the river Sutlej at Alsu, Dahar and old Bilaspur. Tools of the Early Stone Age, belonging to the Sohan chopper-chopping tool complex, were obtained from the lower two terraces (fig. 12).

RAJASTHAN

59. EXPLORATION IN DISTRICTS AJMER, BHARATPUR AND JAIPUR.—The Director of Archaeology and Museums, Government of Rajasthan, explored the area round Pushkar near Ajmer and discovered a prospective site at Nand, which at one time occupied an important place in ancient Rajasthan. A Kushan sculpture was found at the site.

The Superintendent of Archaeology and Museums, Udaipur Circle, Government of Rajasthan, discovered a few Painted Grey Ware sherds at Aghapura near Bharatpur, along with two fragmentary Kushan sculptures. He also discovered a Yoga-Narayana image at Abaneri, wherein the meditating deity holds a garland in the upper hands as in the famous sculptures from Didwana, now in Jodhpur Museum.

The Director also explored and discovered *in situ* Early Stone Age implements at Dhigaria between Bairat and Thanagazi in District Jaipur.

60. EXPLORATION IN DISTRICT CHITORGARH.—Dr. H. D. Sankalia, Dr. Z. D. Ansari and Shri S. N. Rajguru of the Deccan College Post-graduate and Research Institute, Poona, explored some stretches of the rivers Bagan and Gambhiri. Along the Bagan river, which was explored to a distance of about 4 km. downstream from the bridge on Udaipur-Chitor road to the confluence of Bagan and Berach, were studied three cliff-sections, one on the left bank, about '80 km. from the bridge, and the other two on the right bank near the confluence. The stratigraphic sequence at the section on the left bank shows, from top downward : sandy silt, about 1.20 m. thick ; fine grained gravel, about 1 .50 to 2-50 m. thick ; mottled clay, about .45 m. thick ; cemented pebbly gravel, about .30 m. thick, yielding ten implements of the Early Stone Age ; mottled clay, about 3 m. thick ; and bed-rock (banded gneiss).

Where the rock-level is very high, all the layers tend to be thin. At places, the lower mottled clay is totally absent and gravel I (lower cemented pebbly gravel) is either absent or has mixed with gravel II (fine-grained gravel), wherein a mixed assemblage of Early and Middle Stone Age tools was found. About one hundred and fifty tools were collected from the gravels, both loose and *in situ.* Most of the tools were made of quartzite and appear quite fresh.

The Gambhiri river was surveyed to a distance of about 2.40 km. downstream from the road-bridge near the Chitor town. The section at a distance of .80 km. from the bridge, on the left bank of the river, consisted of 3-m. thick gravel capped by .60- to .90-m. thick silt and resting probably on the shale bed-rock which is not visible being covered either by recent silt or loose gravel. The lower portion of the gravel yielded ten tools, mostly bandaxes and cleavers. On the right bank of the river near the bridge, a section showing well-cemented gravel resting on shale and capped by silt was also studied. Three tools of the Early Stone Age were found in the cemented gravel. The loose gravel from the river-bed yielded a large number of tools of the same assemblage, viz. handaxes, cleavers, scrapers and choppers, including miniature handaxes and cleavers-cum-handaxes. The tools showing less rolling are mostly made of quartzite, which is quite abundant in the form of pebbles in the river-bed itself.

61. EXCAVATION AT KALIBANGAN, DISTRICT GANGANAGAR.—With a view to imparting field-training to the students of the School of Archaeology, the Excavations Branch

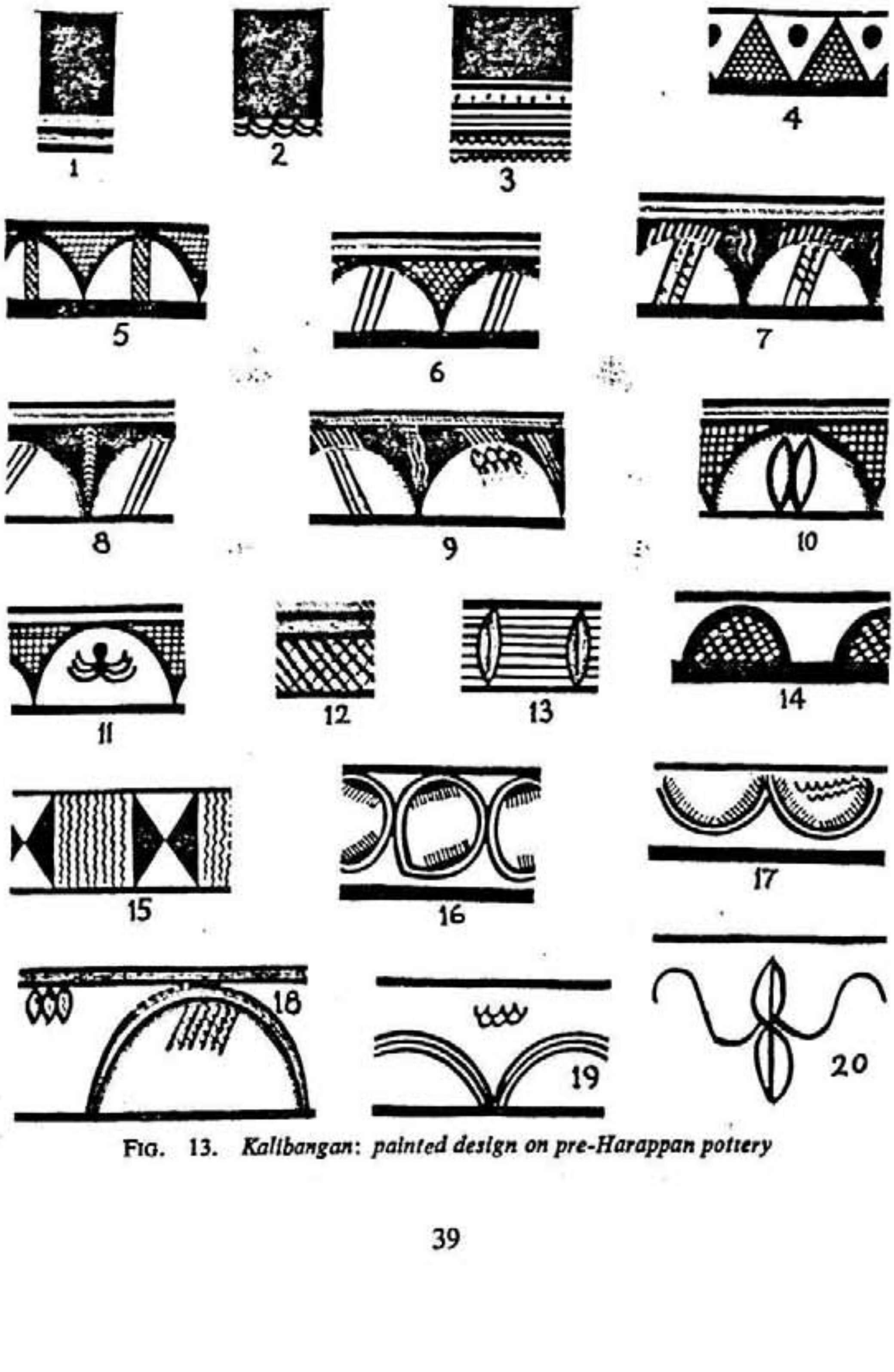


FIG. 13. *Kalibangan: painted design on pre-Harappan pottery*

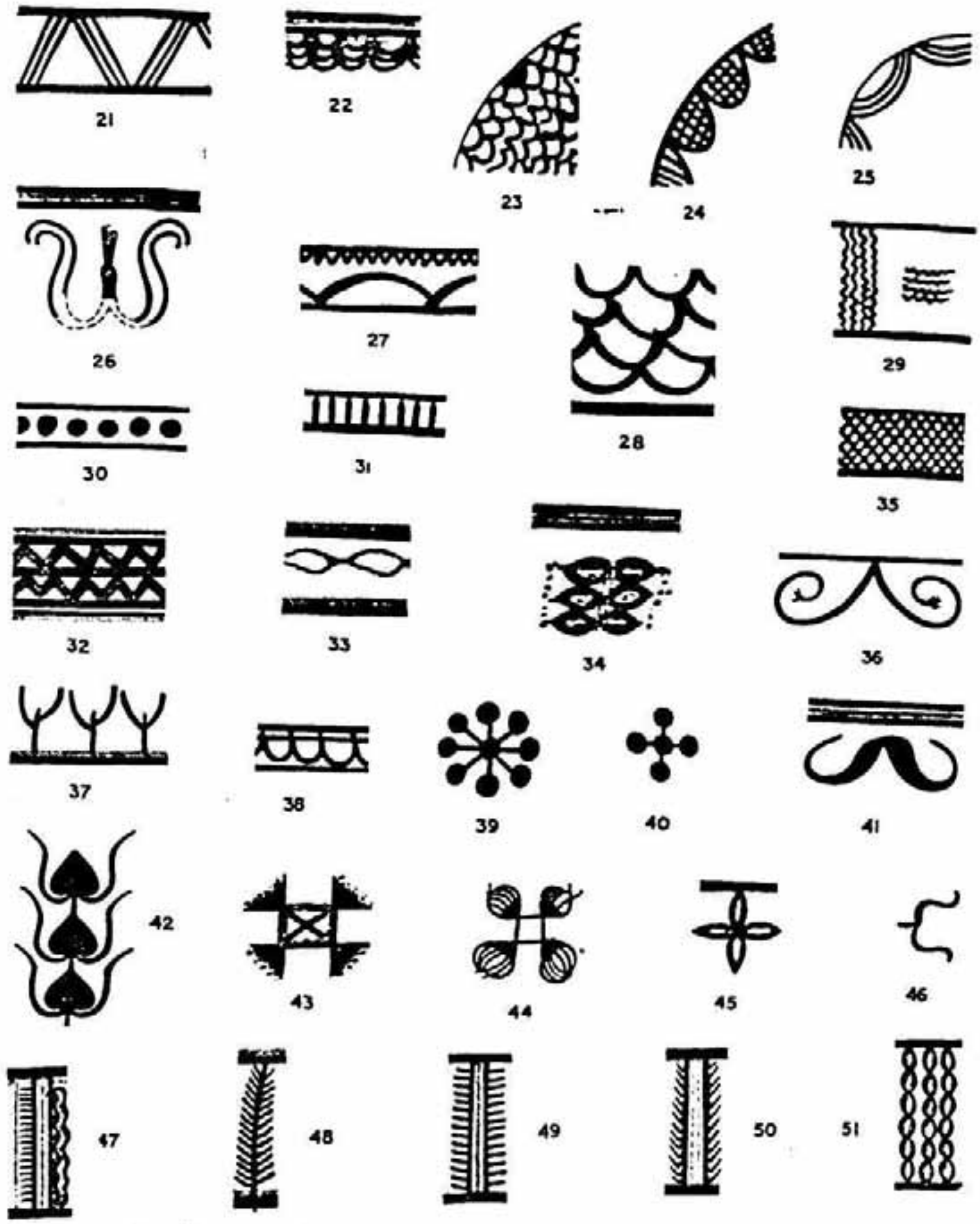


FIG. 14. *Kalibangan: painted designs on pre-Harappan pottery*

of the Survey, under the direction of Shri B. K. Thapar, continued (1960-61, p 31) excavation at Kalibangan. Incidentally, this season's work had two other objectives to realize : first, to ascertain the precise sequence of the non-Harappan element notablv represented by pottery met with last year in the lower levels, and, secondly, to'establish the existence or absence of a citadel or acropolis in the smaller of the two mounds named KLB-1. Evidence for both these objectives came principally from this mound '

Excavation revealed a sequence in which the true Harappa culture was in the lower part bracketed and, as a whole, preceded by an antecedent culture.

At KLB-1, the lowest 85-cm. deposit overlying the natural soil yielded definitive elements of apre-Harappan culture. Within this deposit three structural Phases were recognized. TneXhouses were built of mud-bricks sometimes separated by lanes (pis. LXI and LXII B), there being no evidence of the use of baked bricks. The alignment of

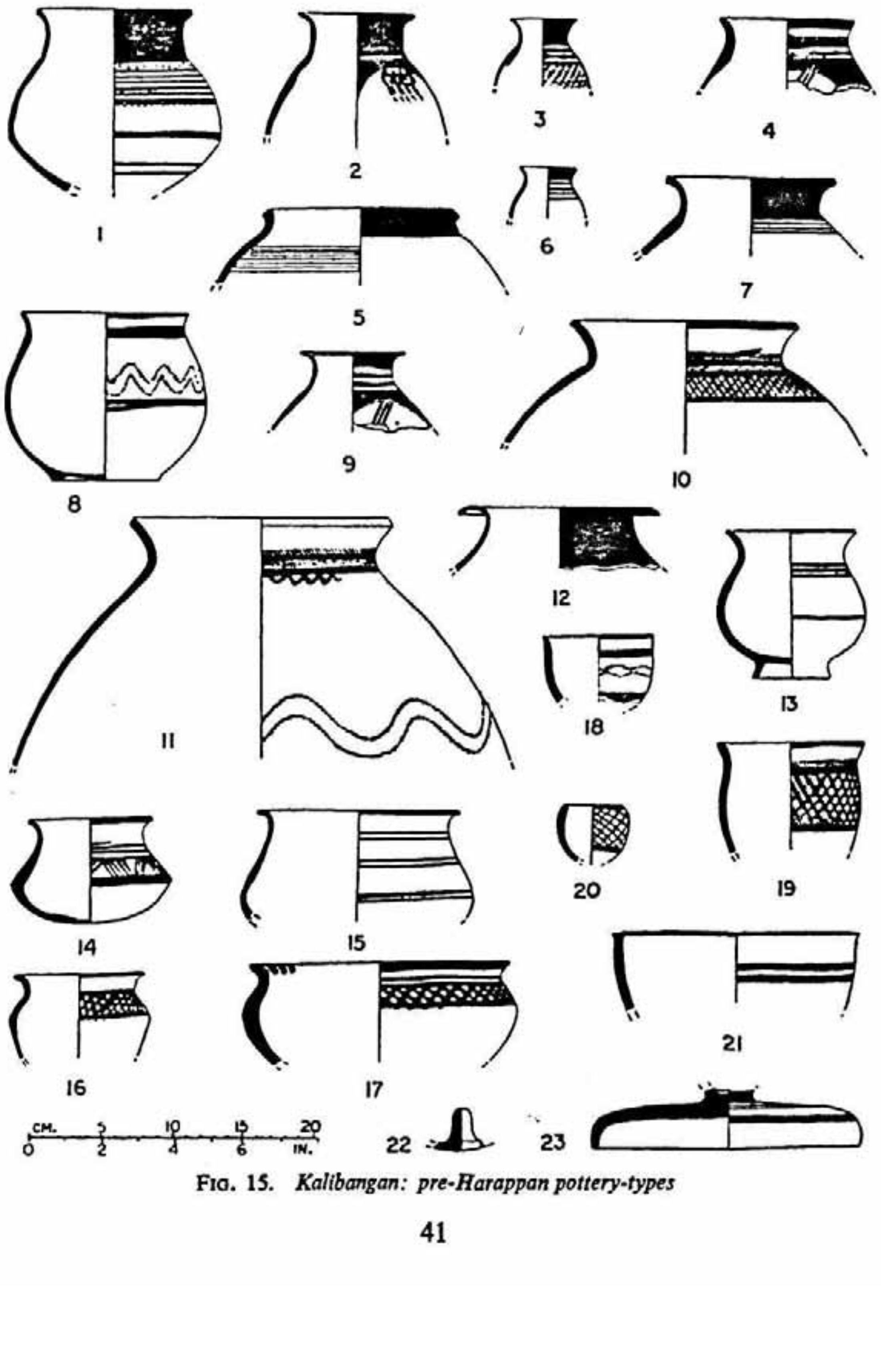


FIG. 15. *Kalibangan: pre-Harappan pottery-types*

the houses and the brick-sizes were significantly different from those of the Harappa culture. The bricks used were mostly of the size of 30 X 20 X 10 cm.

The distinctive trait of this earlier culture was the pottery, which was wheel-made, comparatively light and thin in fabric, red-to-pinkish in colour and painted in black, combined at times with white, over a self-slipped dull surface. The combination of black and the restrained and, in some instances, hairline white hatched in the drawings (figs. 13 and 14) considerably heightened the design-effect. The chief characteristic of the pottery was the emphasis on the neck and the shoulders as the prime field for painted decoration. Examples of single motifs occurring below the belly, notably on those pots which showed a roughened or rusticated surface, were not wanting. The design-elements were essentially geometric. The simplest of them included : horizontal bands (fig. 13, 1-3), sometimes as thick as the height of the neck, and in conjunction, covering a portion of the shoulder as well ; loops or meanders, inartistically fringed below or enclosed by horizontal bands (figs. 13, 2 and 3, and 14, 22, 27, 32 and 38) ; rows of dots (figs. 13, 3, and 14, 30) ; diagonally cross-hatched or latticed triangles(fig. 13, 4) ; panelling of butterfly or opposed triangles by wavy verticals (fig. 13, 15), or wavy verticals by horizontals (fig. 14, 29) ; cross-hatched semi-circles (fig. 13, 14) and lenticulars (fig. 13, 13) ; cross-hatching (fig.

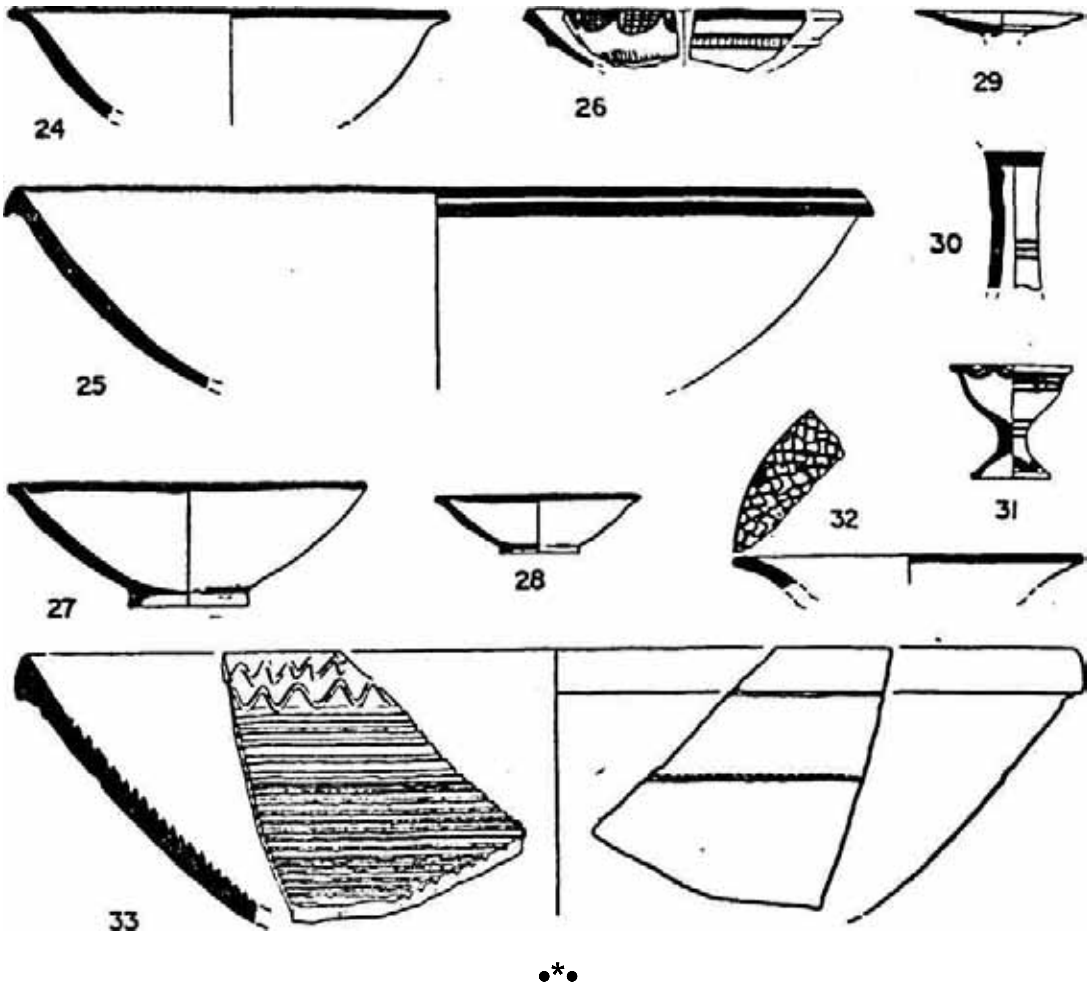


Fig. 16. ***Kalibangan: pre-Harappan pottery-types*** 42

13, 12, and fig. 14, 35) ; converging groups of diagonal lines (fig. 14, 21) ; chain, both horizontal and vertical (fig. 14, 33 and 51) ; and the peculiarly Indus scales (fig. 14, 28). The potter's latitude in space-treatment is seen in the designs consisting basically of joined semi-circles (fig. 13, 5-11), with the intervening space giving the effect of pendant concave-sided triangles. These triangles and the enclosed arches were decorated with different patterns, including criss-cross hatches, meanders, chevrons, oblique lines, lenticulars, spiders, etc. As fillers were employed such motifs as : radiating lines ending in solid disks (fig. 14, 39 and 40) ; four petalled flowers (fig. 14, 45) ; plant-motifs (fig. 14, 37, 42 and 48) ; squares with triangles at the corners very feebly resembling a Maltese cross (fig. 14, 43) ; and the bucranium in horizontal fashion showing marked conventionalization with minimum of detail (fig. 14, 46). Some of these motifs (notably fig. 13,4 and 15, and fig. 14, 39 and 40) are parallelled at sites in the Zhob valley and at Amri. The range of shapes (figs. 15 and 16) was, however, limited, the commonest being : the jar with an out-turned or out-curved rim and rounded or disk-base (fig. 15, 1-13) ; bowl (fig. 15, 19-21) ; and deep basin (fig. 16, 25 and 33). The last was decorated internally on the sides with sharp-ridged incisions, executed perhaps by a reed-fragment, and on the rim with similarly-executed wavy incised lines. The dish-on-stand (fig. 16, 29 and 30) was also available though not frequently. Besides, the dish and bowl of varying sizes were also represented (fig. 16, 24-28). A miniature chalice (fig. 16, 31), being a singular type obtained from the top deposits of the site is, in fabric and design, similar to the pre-Harappan pottery and as such is included in this group. The lid (fig. 15, 22 and 23) was quite distinctive and anticipated the correspond ing Harappan form. It may be stated at the same time that in surface-treatment, texture and compactness this ware is inferior to that of Harappa.

For the ancestry of this ware, which is widely prevalent on sites in the Sarasvati and Drishadvati valleys, much further work and analytical study of the material from these sites, as also of that from the Baluch-Indus sites, is necessary. The ascribed similarity of this ware with that of Kot-Diji or of the pre-defence deposits of Harappa is only generic.

The other finds of this culture included blades, sometimes saw-edged, and terracotta bangles, both circular and quadrangular in section, and beads including those of steatite (disk). Copper or bronze was exceedingly rare, only one indeterminate fragment being found in the late levels of this culture.

After the arrival of the Harappans on the site, a massive mud-brick wall (pl. LXII A) was built around the site now called KLB-1, which presumably served as the citadel. This wall partly cut through the deposits of the preceding culture. Further evidence is, however, necessary to obtain fuller details about the complete outline, thickness, and other structural features of the wall. Within the 'citadel' at various levels were found mud-brick platforms (pls. LXII A and LXVII A), a well (pl. LXIII A), and baked-brick drains (pl. LXIII B), which speak of a disciplined array, so characteristic of the Harappa culture.

At the larger of the two mounds, named KLB-2, the excavation confirmed last year's findings, viz. an overlap of the pre-Harappan and the Harappan cultures from the very beginning of the occupation to nearly half-way through, if not more. Besides the easily-recognized Harappan and pre-Harappan pottery, a buff-slipped ware, commonly showing horizontal bands exposing the body-fabric of the pot by the 'reserve' technique, was also met with in these overlapping levels. Another noteworthy element was terracotta bulls with elongated body and block or joined legs.

Two arterial streets, runing north-south and respectively 7.25 and 3.25 m. wide along with the flanking house-blocks, were partially excavated (pl. LXII B). The material used for metalling the road-surface, notably in the upper levels, was terracotta

nodules (pl. LXIV A). Where elaborate street-drains (pl. LXVIIB) did not exist, house-drains which were either of wood (pl. LXIV B) or of baked bricks (pl. LXV A) discharged themselves into soakage-jars (pl. LXV B) buried in the street. The use of timber, scooped in a U-shaped manner, for drains is noteworthy.

Amongst the exposed structures, a substantial building, approximately 13.40x 12.35 m. in area and with massive walls built to a depth of 1 .60 m. covering seventeen courses of mud bricks in the foundation (pl. LXVI A), is of unusual interest. A tripartite plan (pl. LXVI B) is indicated with a central squarish room flanked on all the four sides by symmetrically-disposed corridor-like rooms and compartments. No entrance to the building or to any of the compartments was found, with the result that the nature of the building still remains elusive.

The pottery, both plain and painted, and other finds, including chert blades, weights, copper implements, terracotta objects, gamesmen, beads, etc., were of the typical Harappa culture. Special mention may, however, be made of a pot showing the impression of textile (pl. LXVIII A), distinctive inscribed seals and a sealing (pls. LXVIII B and LXIX), one of them showing an unusual tiger, terracotta human figurines (pl. LXX A) and a terracotta bull (pl.. LXX B) showing a masterly modelling of the body and the dynamic mood of the animal, with its head and dewlap closely resembling the one from Mohenjo-daro.

62. EXPLORATION IN DISTRICT UDAIPUR.—With a view to throwing some light on the ancient copper-mining and smelting and to tracing the probable source of the raw material for the copper objects found in the excavation at Ahar (below, p. 45), Dr. G. G. Mujumdar and Shri S. N. Rajguru, under the general supervision of Dr. H. D. Sankalia of the Deccan College Post-graduate and Research Institute, Poona, undertook a preliminary survey of the old copper-workings around Udaipur.

The presence of extensive heaps of copper slag laying around Debari, Delwara and Keroli in District Udaipur, Khetri and Babai in District Jhunjhunu and Kho-Dariba in District Alwar indicated the likelihood of a flourishing copper-mining and smelting industry in the region. Most of the mining activity seemed to have ceased towards the beginning of the nineteenth century, chiefly due to competition from the imported metal, increased difficulties in mining and high cost involved in smelting small quantities of the ore by indigenous methods. During the present survey the following areas were visited and studied.

In the Delwara-Keroli area, about 28.96 to 38.62 km. north-north east of Udaipur, the survey revealed the presence of old workings near Delwara, Keroli, Kotri, Piplia and Vilota. The openings near Kotri and Delwara appear to be very crude and small in dimensions, the deepest amongst these being 36 .57 m. deep. In the vicinity of Kotri, a Bhairava temple, probably belonging to the Gupta period, was also found.

The chief copper-bearing minerals extracted from these old pits are chalcopyrites, a sulphide of copper and iron, and malachite, a carbonate of copper. They are associated with quartzites, phyllites, biotites and actinolite schists. The controlling factors in localizing the ore is, in most cases, either a fault or shear zone. The older rock-formations met with in the area are pre-Aravalli gneisses, quartzites and dolerites of the Aravalli series and dolomatized limestones, porcellanites and epidiorites of the Raialo series. The ancients appear to have carried out the mining by following the outcrops of these minerals from the hill-tops and sides. Most of the old workings are situated in harder geological formations such as quartzites.

The slag-pieces lying near these workings show variations in dimensions, shapes, composition, density, etc., from very light froth-like glassy to heavy-iron rich varieties,

sometimes having malachitic or azuritic stainings. Large cakes of slag with an average diameter of 25 to 30 cm. were observed. Portions of clay retorts, crucibles and other pots, as also malachite-stained quartz-pieces, were collected from these heaps.

In the area around Dhariawad, Lassadia and Salumbar about 80 km. south-east of Udaipur, one old copper working was found at Velyi near Lassadia. Neither good ore with any piece of slag nor copper-carrying quartz-vein could be found near the working. The controlling factor for mineralization is a fault zone. The associated rocks are granites and chlorite schists. In the fault zone proper a thin band of aplite with intensive malachitic staining was noticed.

At Bansda, 49.88 km. from Udaipur, on the Udaipur-Binder Road, a large quantity of scattered copper slag-pieces was seen in an open cultivated field but without any trace of old copper-working in the locality. The land is quite flat and the bed-rock exposed is a granite of pre-Aravalli formation.

The following four types of slag-pieces were noticed during this survey: heavy and massive type containing more iron and possibly copper and other silicates ; lighter type with less iron and more of silica and other silicates ; glassy froth ; and slag-pieces fused with either burnt clay or with fine sand. Of these similar glassy froth was also found at Ahar in purely chalcolithic horizons.

63. EXCAVATION AT AHAR, DISTRICT UDAIPUR.—An excavation, jointly sponsored by the Deccan College Post-graduate and Research Institute, the University of Poona, the Department of Archaeology, Government of Rajasthan, and the University of Melbourne was undertaken at Ahar, already subjected to two seasons of digging (1954-55, p. 11, and 1955-56, p. 14). The work was carried out under the direction of Dr. H. D. Sankalia and with assistance from Dr. S. B. Deo, Dr. Z. D. Ansari, Dr. M. S. Mate, Dr. G. G. Mujumdar, Dr. (Mrs.) G. Karve-Corvinus, Shri S. N. Rajguru and six students of the University of Poona and the Deccan College ; Shri R. C. Agrawal, Shri J. K. Sinha, Shri Vijaya Kumar and Shri Chakravarti of the Rajasthan Department of Archaeology ; and Dr. William Culican, Dr. Kazi and Mr. Ted Nixon of the Melbourne University.

The site, locally known as Dhulkot, lies about 600 m. west of the railway-station of Udaipur and consists of two mounds separated by a modern road. The excavated mound measures roughly 305 X 244 m. and rises to a height of about 15 m. above the water-level of the Ahar river, flowing seasonally by the north-western flank of the western mound. The earlier excavation had revealed a 12.80-m. thick occupational deposit, of which the lower 11.30 m. were associated with the white-painted black-and-red ware and the upper 1 .50 to 1 .80 m. with the early historical material.

This season's work had two objectives: first, to understand the economic and cultural life of the people using the white-painted black-and-red ware in south-eastern Rajasthan and, secondly to determine further links in Rajasthan between central India and Iran or western Asia. Both these objectives were fulfilled, though in a restricted measure.

Eight squares, each 6.10-m. square, were laid out on the eastern mound with a view to obtaining a full sequence of culture at the site as also the house-plans in the earlier phases. In addition, a part of the southern mound was also carefully scraped.

Excavation revealed two cultural Periods with three Phases in each. Period I, comprising as many as fifteen structural phases, was characterized by the occurrence of the painted pottery and copper slag and absence of iron. Period II was marked by the advent of iron, the use of soak-pits, and terracotta sealings with Brahmi characters and the appearance of the Northern Black Polished Ware.

From a comparative study of the pottery-types, as also from Carbon-14 determinations from the site the beginning of Period I may be dated to *circa* 2000 B.C. A

characteristic shape in the white-painted black-and-red ware, occurring towards the top of Phase I at Navdatoli, now dated to 1791-1762 B.C., is found in Phase I C at

Ahar. This indirect dating is consistent with the Carbon-14 determinations from Ahar itself.

The distinctive feature of the Period was the variety of ceramic fabrics, besides the white-painted black-and-red ware. The pottery of Period I, though mostly wheel-made, showed different techniques in shaping. Hand-made vessels, notably the storage-jar with applied bands and roundels (pi. LXXV A), were also present. Some of the pots showed combination of both these techniques, whereby the neck and the upper portions were thrown on the wheel, the remaining part being hand-made; the two parts were luted together and beaten out. Some vases of the blotchy-grey and red wares were found to be extremely thin in the lower portions, with the result they often broke. In several cases, the bottoms were deliberately roughened with the application of powdered quartz or sand. Another noteworthy feature of the pottery of Period I was the scooping, uniformly seen in the pottery with rounded or sagger bases and in the earliest stage of the black-and-red ware. A bunch of dry grass or split bamboos seemed to have been employed to produce this effect.

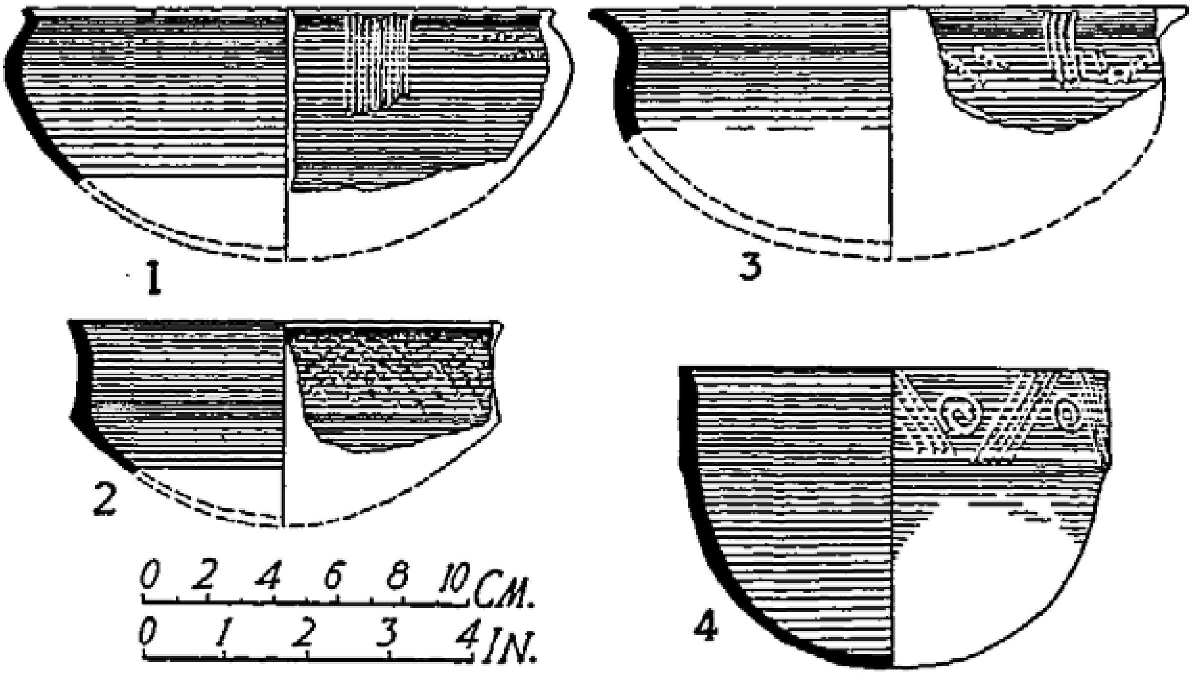


FIG. 17. *Ahar: black-and-red ware ; 4, Period I B; 1-3, Period IC*

The different ceramic industries met with in this Period were distributed as below: I A, the cream-slipped, the buff, the coarse black-and-red, painted black-and-red, blotchy-grey and the red-slipped with variations like orange, tan and chocolate; IB, absence of the cream or buff ware and presence of all other industries of the preceding Phase, with a single sherd of the Jorwe Ware; I C, red-washed, painted black-on-red, black-and-red, coarse red, the Lustrous Red and the blotchy grey wares.

It will thus be apparent that the cream and buff, the red-washed and the painted black-and-red wares form the diagnostic traits for the different Phases.

In the cream and buff wares, only two shapes, viz. small globular pot and bowl with concave sides, were available, both being found also at Navdatoli in the cream-slipped ware. The buff ware from Ahar, however, bore a distinct greenish grey slip and recalled a similar fabric from Baluchistan and Iran (pl. LXXVI A).

The painted black-and-red and other wares showed significant evolutionary traits. The bowl with rimless straight (pl. LXXIII A) or with convex sides (fig. 17, 1) and that with ribbings near the edge (fig. 17, 4), as also the shallow bowl with an external ledge and flared edge (fig. 17, 3) and the shallow pan and basin (pl. LXXIII B) dominated Phases I A and I B, while the normal carinated bowl emerged only in the topmost Phase, I C. In the earlier two Phases, the painted black-and-red ware had a variety with a brown slip.

The red-slipped ware, abundant in the first two Phases, could be divided principally into two classes, the thick red-slipped and the thin red-slipped, both highly burnished. All other wares, showing tan, orange, brown or chocolate slip, were grouped under the red-slipped ware. A remarkable shape in the thick red-slipped ware was the vase with sloping corrugated shoulder, broad or high cylindrical neck with corrugations and possibly a pedestal-base (fig. 18, 4). Besides the corrugations at the shoulders, incised linear patterns, applied roundels and wavy bands were also drawn. The portions below shoulders were intentionally rusticated or made coarse by the application of sand or quartz-powder. It is likely that the undecorated part of such vessels was buried in the ground. The thin red-slipped ware showed a highly-burnished fine surface and was

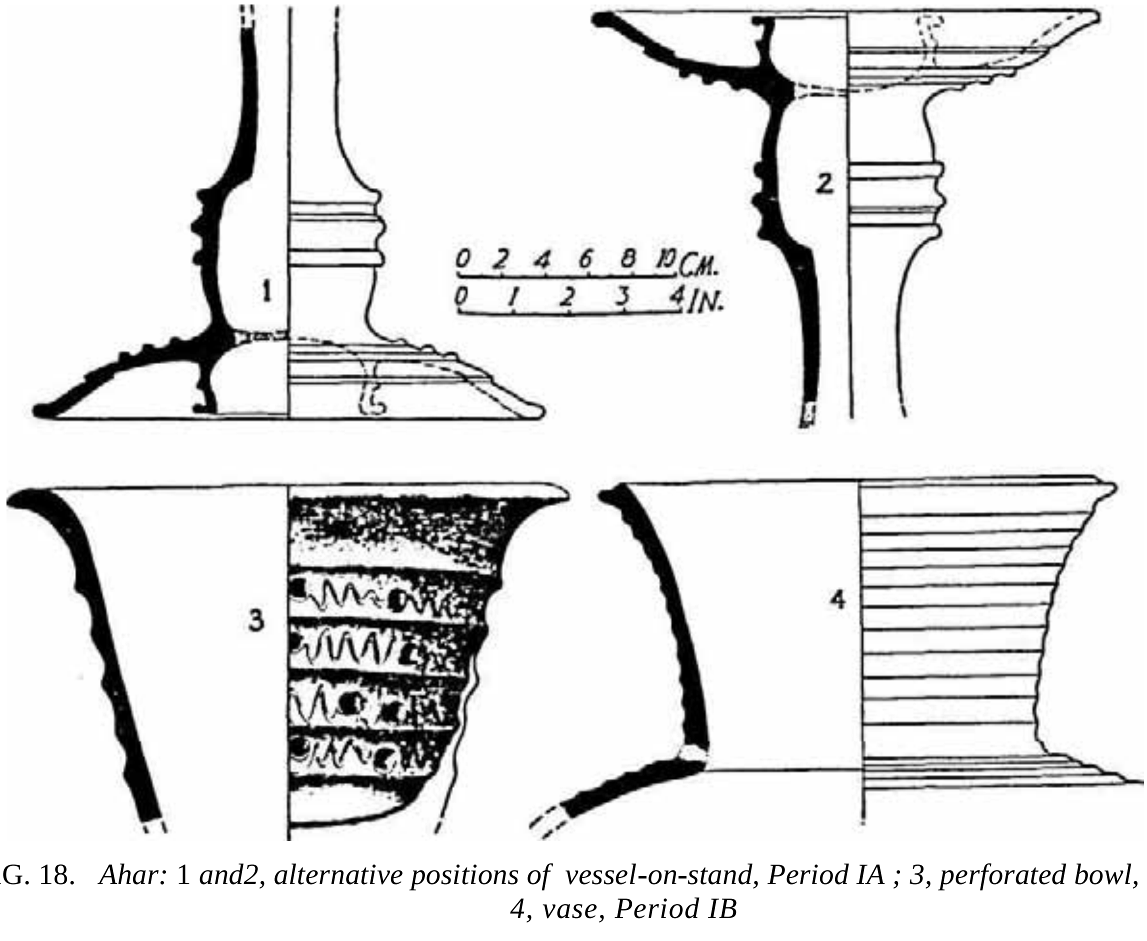


FIG. 18. *Ahar:* 1 *and 2, alternative positions of vessel-on-stand, Period IA ; 3, perforated bowl, Period IB; 4, vase, Period IB*

represented by the rimless bowl, similar to that in black-and-red ware, and the small basin. This ware, as also the preceding one, was abundant in Phase I B.

The dish-on stand (pl. LXXIII C) was represented in red, tan, chocolate and orange-slipped varieties in the first two Phases and in the painted black-on-red ware in the top-most Phase. Specimens in the red ware consisted of the stepped shallow dish on a hollow or solid cylindrical stem. Of an unusual type was a vase which, if kept with the dish-part above the stem, looks like a chandelier or a double bowl and reminds one of similar vessels from Shah Tepe (Iran) and Crete (fig. 18, 2; pl. LXXIV B). Reversed, it appears the base of a gracefully-tapering column, supported by a stepped, bulbous base (fig. 18, 1; pl. LXXIV A). On the column might have stood a small in-turned bud or half-opened flower-like vase. Beside this, the globular pot with a medium high neck and a black dot on the belly (pl. LXXII A), the *kunda* and basin, sometimes with small channel-spout (pl. LXXIV C), formed the other shapes.

The grey-slipped ware occurred throughout all the Phases of Period I but was relatively more abundant in Phase I B, where it was represented in the form of the lid with a knobbed, triangular or clamp-like hold, basin, globular pot (pl. LXXII C) and *kunda* and a dish-on-stand (pl. LXXIV D). Animal-headed handles (pl. LXXVII A), simulating such features from Troy and Geoy Tape, were unique and have not been reported from other post-Harappan chalcolithic sites in central and western India.

While the vase with roughened surface or rusticated belly (pls. LXXII B and D), of which quite a large number were found, could be used for cooking, the perforated basin or bowl (fig. 18, 3) could be used either for steam-cooking or for keeping fire-embers. A bowl on a broad hollow stem and base (pl. LXXIII C) also affords parallels at Tepe Hissar in eastern Iran. Some hand-made forms of miniature vases in coarse grey ware, mostly from the earlier Phases, might have been kept suspended.

An equally wide range in decoration was noticed during the Period. The decoration was painted, incised and applied, sometimes cut or excised. Of these, the first could be divided into two classes, viz. dull-white on the black-and-red ware and black on the red-washed or slipped ware. The former comprised linear patterns, such as strokes, lines, spirals, wavy lines, hatched diamonds and banners in Phases I A and I B and panelled dotted chevrons in Phase I C. The black painting on red ware, confined to Phase I C, showed only bands, wavy lines and loops. The incised decorations occurred mostly on grey and red-wares and comprised groups of slanting or wavy lines. The latter (pl. LXXV C) seem to have been made with the help of split bamboo-strips and were confined mostly to Phase I B. The applied patterns showed either wavy or plain bands and roundels either plain or punctured (pl. LXXV B). The cut or excised decorations, restricted mostly to the red-slipped and grey wares, resulted from regularly excising the applied bands on the pots, producing the effect of a cog-wheel with sharp ends (pl. LXXVI B). This variety of decoration was more frequent in Phase I B.

As already indicated earlier, fifteen structural phases were met with in this Period. All of them showed a remarkable identity in building-methods but often showed changes in plans. The houses were made of stone and mud, the foundation-walls being built of locally available undressed blocks of schist (pl. LXXI A). The walls were reinforced either by a bamboo-screen or by the addition of quartz pieces to clay, a practice still current in south-eastern Rajasthan. The floors were made up of black clay mixed with yellow silt and were also sometimes paved with a bedding of blocks of cemented gravel from the river near by.

The houses measured on an average 9-15 X 4.60 m., although longer walls running to a length 13.70 m. and divided into rooms by mud or mud-brick walls, evidenced larger house-units. A few post-holes indicated the use of such perishable material as bamboo or

wooden rafters as a roofing-material. Large-sized hearths with a unit of two or four cooking positions seemed to be common. The former, on a square platform, showed decorations of depressed chevrons (pl. LXXI B). The five-armed hearth was, however, plain (pl. LXXI C). In both the cases knobs were found on the inner walls to support the pot kept on the oven-mouth.   Although the precise functions of such hearths still remains

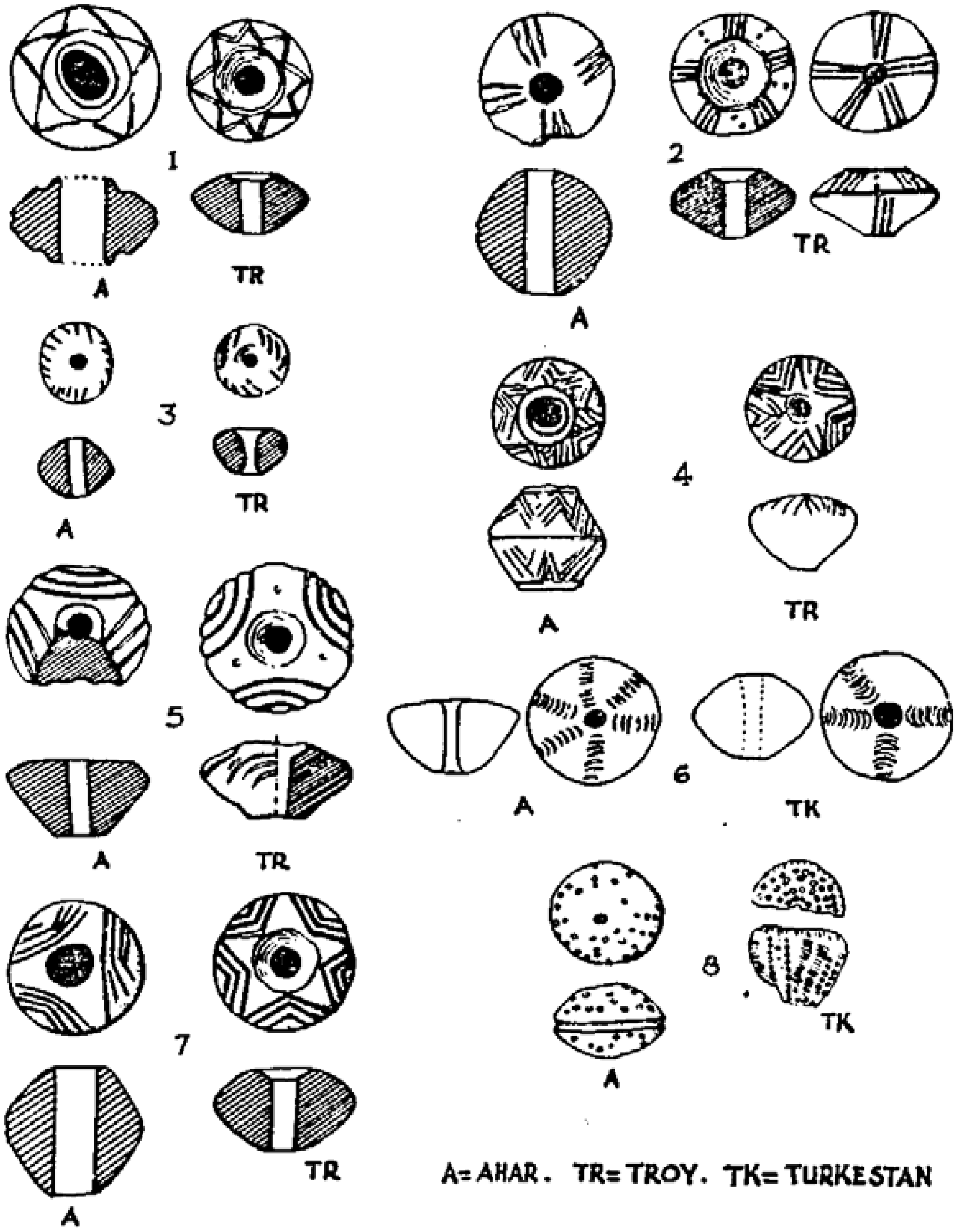


FIG. 19. *Ahar, Troy and Turkestan: spindle-whorl with incised designs*

uncertain, it may be surmised that they were meant for community-cooking or for smelting-operations.

While the occurrence of animal bones attested to a meat diet, querns, pounders and rubbers indicated a grinding-activity suggestive of the use of grains, though no grains were obtained.

Amongst metal objects were found four flat socketless copper axes (pl. LXXVII B), a copper sheet kept in a pot embedded in the flooring of a house and copper slag in a specially-made round pit in the earliest habitational level. From the location of ancient copper workings in the vicinity (above, p. 45) it is surmised that copper was smelted at Ahar from the very beginning of its settlement and remained the basis of the economy of the people for nearly two thousand years till the emergence of iron in about the third-second century B.C.

Amongst the other finds may be mentioned a group of about thirtyeight terracotta spindle-whorls or beads, biconical, globular or areca-nut in shape, and having incised decorations in the form of latticed triangles, slanting lines, chevrons, groups of wavy lines and punctured dots. Some of these patterns closely resemble those found on the spindle-whorls from Troy and Anau in central Asia (fig. 19). Further evidence is, however, needed to establish such tenuous foreign links. Other beads comprised those of agate, carnelian, steatite, faience and shell, some of them found deposited in a small terracotta bottle-like pot with perforations to keep it hanging (pl. LXXV D). Besides, a terracotta ram and a large-horned bull (pl. LXXVII D) and other stylized figures (pl. LXXVII C), comparable with those from Gilund, were also found.

In the absence of any stone tools, the culture may fittingly be regarded as a Copper Age rather than a chalcolithic culture.

Period II, represented by a 1.50 to 1-80-m. thick deposit, marked the advent of iron, innovations in pottery-tradition and civil architecture and knowledge of writing. It was sub-divided into three Phases, designated as II A, II B and II C.

The deposits of Phase II A were characterized by the occurrence of the Northern Black Polished Ware, socketed arrow-heads of iron and a mixture of coarse red, slipped red, plain black-and-red and black-painted red wares, thus interlocking them with those of preceding culture. The succeeding Phase, II B, was associated with the typical Kushan bowl and other types. Remains of floor-levels with sunk wooden posts, ringed soak-pits, terracotta votive tanks, shell bangles and ear-studs, characteristic of the first-third century A.D., were encountered. Two terracotta sealings bearing legends in Brahmi characters of the second century B.C. to the second century A.D. were also found in pits ascribable to this Phase. The topmost Phase at Ahar was distinguished by the find of mica-coated pottery belonging to the early medieval period.

UTTAR PRADESH

64. EXCAVATION AT KAUSAMBI, DISTRICT ALLAHABAD.—The University of Allahabad resumed (1960-61, p. 33) excavation of the palace area at Kausambi under Professor G.R. Sharma, assisted by Shri Dhanesh Mandal, Shri Brij Behari Mishra Shri Vijai Shankar Dubey and Shri Vidya Dhar Mishra. This year's excavation was intended primarily to lay bare the complete plan of the palace-complex during different periods of occupation and as such was horizontal in nature. The three-fold sequence of architectural evolution, as revealed last year, was on general grounds confirmed, the earliest

Phase being further divided into two Sub-phases corresponding to Phases I and II of the defences. It may be recalled that Phase I there, represented by a 1.27-m thick deposit, preceded the appearance of the Northern Black Polished Ware at the site.

Phase I A of the palace-complex yielded pottery-types like the dish-on-stand with a corrugated stem and in other forms, vaguely resembling those obtaining from the post-Harappan chalcolithic sites in western and central India. While some of them were painted in black on the red surface (pl. LXXXII A), others were decorated with incised designs (pl. LXXXII B), similar to those from Onaur and Unchadih (1959-60, pl. XLVII).

A huge structure, the exact nature of which is difficult to ascertain at this stage, also belonged to this Sub-phase. Bottle-shaped pots placed face downwards in parallel lines at one end of this wall provided interesting evidence, possibly of some ritual, in connexion with the building of the place.

The next Sub-phase was marked by the use of the grey, both painted and plain, and red wares. The foundation of the stone palace was laid early in this Sub-phase (pl. LXXVIII A). Out of the five layers which accumulated against the wall of this Phase, four preceded the N.B.P. Ware. The first phase of the palace, therefore, could be dated to *circa* eighth century B.C.

Phase II of the palace, associated with the use of the Northern Black Polished Ware, represented by the south-eastern tower on the Yamuna (pl. LXXVIII B), the western boundary-wall above the foundation of the wall of Phase I A and a drain of dressed stone.

Situated at a distance of 268 m. from the north-eastern tower of the palace, exposed last year, the south-eastern tower, with a diameter of 10.66 m., was found to be in a dilapidated condition.

The western boundary-wall, with a facing of dressed stones, was built over the earlier wall of Phase I A. Huge blocks of stones were used in the foundation.

The drain, -86 m. deep and -45 m. wide, built of dressed stone with flush-pointing (pl. LXXIX A), both on the bed as well as on the side-walls, was available to a length of 4-64 m.

Ascribable to Phase III of the palace were the extensive structures which in their ruins constitute two prominent mounds on the Yamuna. These structures were divided into three blocks enclosing two galleries running north-south (pl. LXXXI A). The doors in each block were found to be in a strict alignment of each other. The central hall of the central block, measuring 11.50 X 3.42 m., was possibly used as an audience-hall inter-communicating with all the rooms. The rooms may have served as residential block for the ruler.

The walls were constructed of bricks and stones used indiscriminately (pl. LXXIX B) and were plastered with a thick coating of lime (pl. LXXX A). At some places more than one coat of plaster was also in evidence, the lower one being thicker. The surface of the earlier coating was roughened by lines or scratches for securing a hold for the upper coat, which was thinner in section but was better in quality.

The alignment of the structres of this Phase was different from that of the earlier Phases. Six structural Phases were recognized. The plan of the palace, however, remained substantially the same throughout.

Of all the structural Phases, the last one is particularly noteworthy. A vast net-work of underground chambers and the superstructure in the three blocks and the galleries were found to be built on the principle of true arch. The arches showed different varieties, the four centred pointed arch for spanning narrow passages and segmental arch for wider areas.

The last structural Phase, wherein no N.B.P. Ware was recorded, can be dated to *circa* first-second century A.D.

The underground chambers existed in all the three blocks. The plan of the basement closely followed that of the main hall and the adjoining rooms. The arched roof of the underground chamber was found to be 2.59 m. high. The arch of the passage was of the four-centred pointed type (pl. LXXX B).

In the eastern block there were three underground chambers, access to the two western ones being provided through the eastern gallery. The collapsed arch of the extreme eastern chamber was found to be very well preserved.

In the western block too, there was evidence for two underground chambers with access from the western gallery. Although the roof of the chamber was found almost completely destroyed, the arches on the passages were well-preserved (pl. LXXXI B).

The superstructure in the central and eastern blocks was found to be collapsed. From a study of the remnants, it can be inferred that they formed part of a dome that adorned the building. The entire superstructure in the different blocks and galleries collapsed on a layer of ash, about 5 cm. in thickness, indicating that the palace was destroyed by an extensive conflagration.

There is evidence that the area of the palace was occupied subsequently, although the palace as such had ceased to exist. Excavation brought to light remains of six post-palace Sub-phases, represented by shabby floors and equally poor hearths in the passage of the dome and a number of rooms with a different alignment in the north-east corner of the palace, in the area enclosed formerly by the northern and the western stone boundary-walls. On the evidence of pottery and terracottas this Phase could be dated between *circa* A.D. 300 and 600.

65. EXPLORATION IN THE DISTRICTS ALLAHABAD, AZAMGARH, FAIZABAD, GHAZIPUR AND VARANASI.—In the course of his explortion, Shri Pratyush Kumar Khasnavis of the Varanasi Hindu University found some fresh material at the ancient sites of Jhusi, Lachhagir, Sathar, Jalalpur, Sringraur and Kara. At Jhusi traces of a moat and a defence-wall were noticed. The bowl and dish of the Northern Black Polished Ware, five terracotta figurines, both human and animal, one of them showing a male bust with rich head-dress and ornaments, assignable to Sunga period, were found.

Lachhagir, in Tahsil Handia, is an extensive mound but is gradually being eroded by the river Ganga, exposing brick structures and ring-wells along the river-sections. Sherds of the N.B.P. Ware were picked up from the site. Sathar and Jalalpur in the same Tahsil also yielded the N.B.P. Ware, besides other associated wares.

Sringraur, situated at a distance of 35 km. north-west of Allahabad, was found to yield the N.B.P. Ware, besides old bricks of the size of 30 X 25 X 7 cm.

Kara, 65.98 km. north-west of Allahabad, was also found to belong to the same cultural horizon as the mound mentioned above.

Shri Dhanesh Mandal and Shri Vijai Shankar Dubey of the University of Allahabad discovered an ancient site at Uparadaha, situated 43 km. east of Allahabad in Tahsil Handia. The site indicates a 4-60-m. thick deposit, dominated by the pottery of the early historical period.

Shri Brij Behari Misra of the same University explored the ancient site at Panasa, situated on the left bank of river Tons in Tahsil Karchana and found bowl-and dish-fragments of grey ware with painting and red ware similar to those obtained from the earlier levels at Kausambi. At Bara-Achhola, situated on the right bank of the

Ganga, 48 km. cast of Allahabad, in Tahsil Meja, he found sherds of the N.B.P. Ware and associated red wares.

In the course of an exploration, the Department of Ancient History, Culture and Archaeology, University of Allahabad, under Professor G.R. Sharma, discovered a large number of megaliths at the foot of the hill, locally known as Hathinia, situated on the right bank of the river Chandraprabha in Tehsil Chakia of District Varanasi and to the cast of the hillock known a Magandiwana, at a distance of about 5 km. from Ahraura. They represented mainly two types : stone circles with cairn (pl. LXXXIII A) and stone circle with upright stones erected in the middle (pl. LXXXIII B), the former being the dominant type. The stone circles range from 7.62 to 9.14 m. in diameter with the cairn rising to a height of 18.0 to 2.10 m. Some of the circles measured as much as 18.28 m. in diameter. The exact nature of these megaliths and their relationship with those of south India remains to be determined by excavation.

Continuing their exploration in the valleys of the Chandraprabha, Garai and Khajuri rivers, the party discovered a very extensive site yielding microliths (pi. LXXXVI) at the foot of the Hathinia hills. It is significant that megaliths were also noticed in the same area. Microliths were also found at Khajuri, as well as on the top of the hillock, situated on the right bank of the river Garai, known as Raja-Baba-ka-Pahar.

In the explored area, stone fortresses of impressive dimensions were found at Raja-Baba-ka-Pahar (pl. LXXXV) and Magan-Diwana (pl. LXXXIV). The masonry of these extensive fortresses are strongly reminiscent of Jarasandha-ka-Baithak at Rajgir.

Professor Sharma examined the following sites in Districts Azamgarh, Ghazipur and Varanasi and collected from each sherds of the Northern Black Polished Ware, besides noticing ring-wells etc. : Bankatha in District Azamgarh, Bhitari, the site of the famous inscription of Skandagupta in District Ghazipur and Tikari in the vicinity of the Varanasi University. Shri Vijai Shankar Dubey re-explored several mounds at Ayodhya and found sherds of the N.B.P. Ware and other associated wares in a section exposed to a depth of 7.60 m. on the riverside. Besides, a number of ring-wells and soakage-jars were also noticed.

Shri R. G. Pandeya of the Mid-eastern Circle of the Survey discovered rock-shelters with paintings at Bairgarh and Gahla-Shahpur on the bank of river Karamnasa in District Varanasi. The paintings, which are in chocolate or light colour, depict hunting and marching-scenes, with both human and animal figures and geometrical and floral designs.

Shri T. N. Roy, Shri Vidya Prakash and Shri P. C. Pant of the Varanasi Hindu University explored the site of Prahladpur in Tahsil Chandauli of District Varanasi. At Prahladpur, situated 13 km. north-east of Dhanapur village on the bank of river Ganga, the N.B.P. Ware and the associated grey, black-and-red, black-slipped and red wares were found, the types represented being the common bowl and dish. Other finds included beads, terracotta objects and bangles of shell, glass and terracotta. Terracotta ring-wells were also noticed along the bank of the river. Of interest were a few microliths comprising parallel-sided blades.

Shri Kapil Deo Misra of the same University explored the mounds of Saunakdih and Jalhupur. Saunakdih, nearly 13 km. north-west of Varanasi, yielded the N.B.P. Ware in addition to the associated black-slipped, grey and red wares. Some fragmentary medieval sculptures were also noticed. At Niyardih, 27 km. north of Varanasi, some medieval sculptures of Surya, Ganesa, Durga, Vishnu, Kali and Sarasvati were noticed. Pottery similar to that the Saunakdih was also discovered. From Jalhupur, 19 km. north-east of Varanasi, a similar pottery-assemblage, excepting the N. B. P. Ware, was obtained.

Shri Suraj Prasad Lai of the same University explored the mounds of Chandravati, Kailasa and Bairat. Chandravati, 23 km. from Varanasi on the Varanasi-Ghazipur road, yielded, amongst other objects, the N.B.P. Ware. Kailasa, a small mound about 21 km. south-east of Varanasi, had the same ceramic assemblage as the preceding site, besides the black-and-red ware as also an inscribed sealing assignable to the Sunga period. Bairat, situated 26 km. south-east of Varanasi, on the southern bank of the Banganga, a tributary of the Ganga, showed traces of a rampart with high bastions at the north-eastern, south-western and south-eastern corners. The ceramic assemblage was essentially the same as from Kailasa. Other antiquities included beads of agate, carnelian and terracotta.

66. EXPLORATION IN DISTRICT BANDA.—Financed by the Bhor Endowment Fund for Exploration, Shri P.C. Pant, assisted by Shri J. P. Singh and Shri L. Mishra of the Varanasi Hindu University, explored several prehistoric sites in Tahsils Banda, Karwi and Naraini. A large number of tools of the Early, Middle and Late Stone Ages were collected (pl. LXXXVII). A factory-site yielding tools of the Early Stone Age was located on the flat top of Ramachandra hill, about 402 m. north of Naraini town. The implements were mostly fresh, with deep flake-scars on the surface, and included hand-axes and choppers made on cores, flakes and pebbles.

Another factory-site was discovered in a valley near the hill of Banke-Siddha, about 5 km. south of Karwi town. The implements mostly belonged to the Middle Stone Age, the types represented being scrapers, burins, blades, points, cores, etc. A flint handaxe (pl. LXXXVIII A) and a few small chopper-like tools were also picked up from the gravel-bed of the adjacent nullah.

Another Middle Stone Age site was found near Barchcha, on the confluence of Baghain and Ranj rivers, about 6 km. south of Naraini town and Durendi, on the banks of the Ken river, 8 km. south-west of Banda. A handaxe, a 'U'-shaped cleaver and a chopper were also found in each of the above-mentioned localities. At the latter site a section with an implementiferous loose gravel overlain by a thick deposit of alluvium was also noticed.

At Shahpatan, in the vicinity of the southernmost hill of the Pancha-Patrari, about 10 km. south-west of Naraini town, parallel-sided flakes, backed blades, scrapers, notched blades, borers, points and fluted cores were found. No pottery was noticed.

Tools of the Early and Middle Stone Ages, mostly of the latter, were picked up from the gravel-bed of the river Paisuni near Sitapur (Chitrakut), about 8 km. from Karwi.

The microlithic factory-site of Siddapura (1955-56, p. 4) was revisited and a fresh collection of implements made. The industry was represented by simple parallel-sided flakes, besides some points, scrapers and blunted-back blades.

A microlithic factory-site was also discovered at Managavan-ki-Bhauthi, less than 2 km. to the south of the Tikaria railway-station. The implements, made on agate and chalcedony, included parallel-sided flakes, points, lunates, pen-knives and scrapers. Some crude pottery was also found.

A large number of polished stone axes and a few hammer-stones were discovered from Badausa, Bhunari, Itaura, Lodhwara, Rihutia-Chak and Shahpatan and the previously-explored sites of Chakond and Khoh. It is noteworthy that the axes found at Lodhwara were ground only on their working-edges, while those at the other localities were completely ground. An example from Lodhwara hill (pl. LXXXVIII B) was particularly noteworthy in that it had two small pits on either side. Similar pits are also

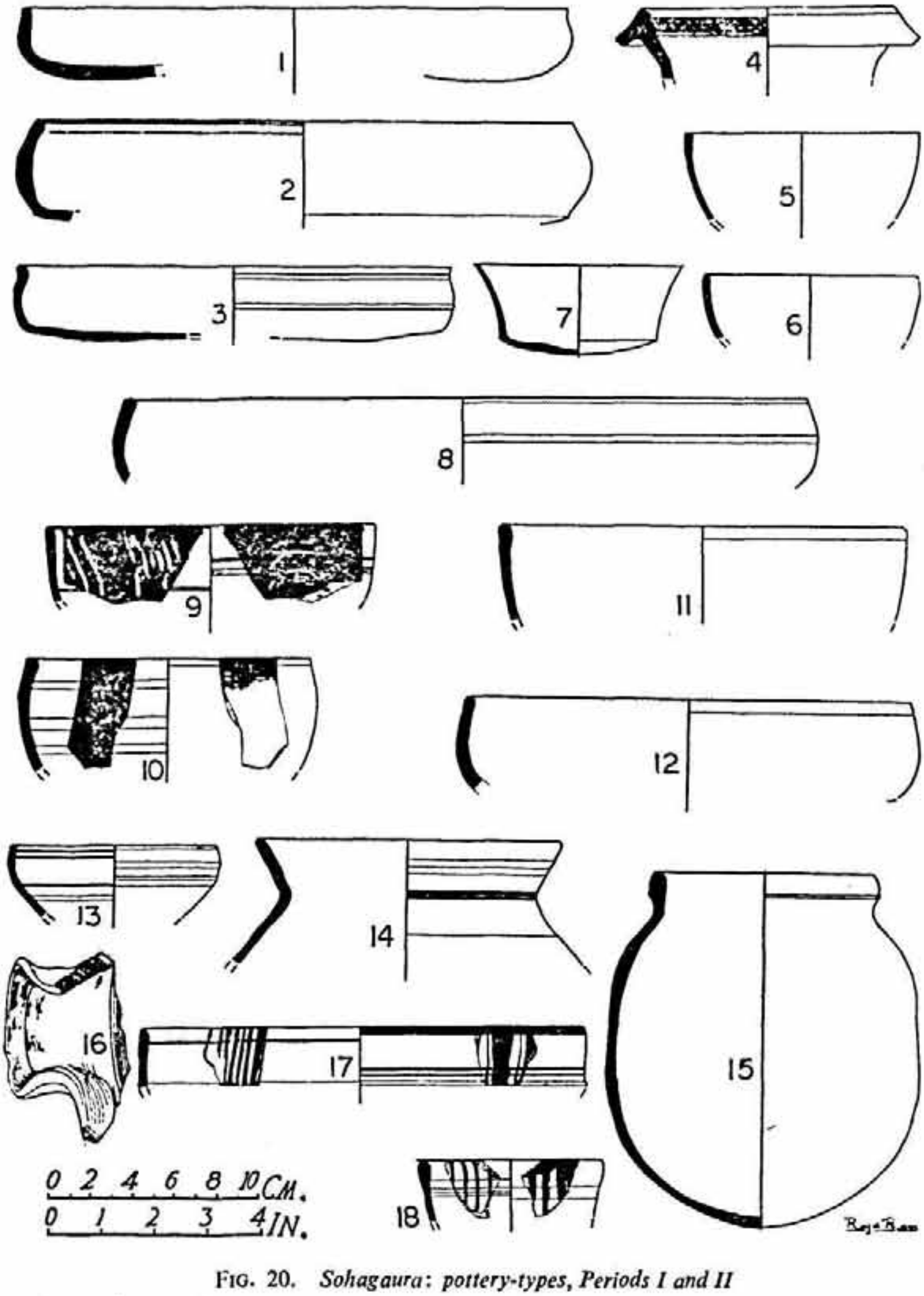


FIG. 20. *Sohagaura: pottery-types, Periods I and II*

found on a hammer-stone from Badausa (pl. LXXXVIII C). It is likely that the pits were meant for securing a grip while in use and not for hafting.

67. EXPLORATION IN DISTRICTS GONDA AND LUCKNOW.—Shri S. B. Singh of the Northern Circle of the Survey discovered the Northern Black Polished Ware and a coarse red ware at Oraghar in Tahsil Tarabganj of District Gonda. He also found the N.B.P. Ware and grey ware, along with terracotta figurines, at Faridinagar and Mandiaon in District Lucknow. The former site also yielded sherds of fine grey and black-and-red wares.

68. EXCAVATION AT SOHAGAURA, DISTRICT GORAKHPUR.—The University of Gorakhpur, under Dr. G. C. Pande, assisted by Shri S. N. Chaturvedi and Shri S. N. Tripathi, undertook excavation at Sohagaura, situated near the confluence of rivers Rapti and Ami, about 32 km. south-east of Gorakhpur, in Bansgaon Sub-Division.

Two trenches, one each on the northern fringe and western slope of the mound and respectively measuring 45 X 5 and 5 m. square, were laid out (pl. LXXXIX A). The excavation revealed a succession of four cultural Periods.

Period I, represented by a 1.60 m. thick platform of compact sticky clay overlain by occupational deposits, yielded pottery of the following varieties : grey ware, painted and unpainted, and plain black-and-red ware, painted black-and-grey ware, painted and plain black-slipped ware and plain red ware (fig. 20).

The paintings on the black-and-red ware were mostly linear and comprised vertical bands often interposed with thicker bands, horizontal oblique or radiating lines and concentric semi-circles (pl. XC A). One of the grey-and-red sherds showed lines drawn in a cream pigment. The design-repertoire for the black-slipped ware was essentially the same but included the criss-cross. Except the common bowl and dish, no other shape could be determined.

Period II was characterized by the appearance of the Northern Black Polished Ware, while the ceramic industries of the preceding Period continued (fig. 20). Other forms exclusive to this Period were the lipped bowl, slipped vase with elongated body, *ghara,* etc. (pl. XC B). The associated objects included beads of carnelian and terracotta and cast coins.

Period III was distinguished by the disuse of the N. B. P. Ware. The associated pottery was represented by the lid with a central knob or flanged waist and shallow bowl with splayed-out rim and vase with stamped symbols like *tri-ratna,* characteristic of Hastinapura IV. Ring-wells (pl. LXXXIX B) excavated on the western slope of the mound belonged to the beginning of this Period. Besides, two terracotta figurines, one with a Sunga head-dress and the other with foreign features, beads and coins were also found. Ayodhya, Panchala and Kushan coins, including a unique coin of a hitherto unknown ruler Hathadeva, though not found in regular layers, could on general grounds, be ascribed to this Period, to which also belonged a structure standing to a height of ten brick-courses. The average size of the bricks used was 25 X 16 X 6 cm.; some of them were as much as 10 cm. in thickness.

Of Period IV, ascribable to the medieval times, no regular structure excepting an elliptical oven made of rubble was met with. The pottery included different shapes of carinated *handis* and spouted vessels, some with mica-dusted surface and with incised and stamped designs, and the typical glazed ware showing multi-coloured patterns in white and turquoise blue. Amongst other finds were glass bangles, including stratified and polychrome specimens, also showing studs along the margins, beads of glass and semi-precious stones and coins of Muhammad Shah Ibrahim, Shah Sultan and Akbar.

69. EXCAVATION AT LALITPUR, DISTRICT JHANSI.—The Deccan College Post graduate and Research Institute, Poona, under the guidance of Dr. H. D. Sankalia, assisted by Dr. Z. D. Ansari, Shri S. N. Rajaguru and four research students, carried out a small-scale excavation at an open Early Stone Age factory-site near Lalitpur, discovered earlier by Shri Rameshwar Singh, a research scholar of the same Institute.

From the nature of the occurrence of tools in open fields and the presence of granitic outcrops throughout the area under consideration, it appears that the area was an open factory-site. Two main localities, labelled Locality A and B, were discovered and excavated, Locality A, rich in tools, situated 1.60 km. north-west of the Lalitpur railway-station and B just behind the Chhatrapal temple in Lalitpur town. As a result, the following sequence was revealed, from top downwards: light-brown humic thin soil-layer with a large number of small pebbles containing few tools, the real humus being almost washed out and the tools, really belonging to the second layer, being found embedded in the thin extant layer; implementiferous sandy layer composed of debris, broken rock-fragments, rounded pebbles, disintegrated granitic material, small lateritic nodules and red-brown clay; and disintegrated pink granite, ultimately passing into granite proper, containing pockets of kaolin and broken pieces of red ochre.

The same sequence was recorded in all the trenches, but in a well behind the Chhatrapal temple an additional layer of black soil intervened between the first and second deposits.

The classified artefacts collected from this small-scale excavation were sixtyfive handaxes, fortynine cleavers, fortythree cores, four hundred and ten rounded pebbles, two hundred and seventy angular fragments, eighteen worked pebbles and seven hundred and twentythree waste flakes. Most of the tools were made of fine-grained granite, the outcrops of which are widely observed in the area, but a few, especially from Locality B, were of sandstone and quartzite. The tools were quite fresh and showed little signs of transportation. Mostly made of flakes, they were unifacially worked. In view of the fact that finished and semi-finished tools were much less in number than waste flakes, the localities may be taken as factory-sites.

70. EXPLORATION IN DISTRICTS KANPUR AND MAINPURI.—Shri L. M. Wahal of the Northern Circle of the Survey discovered the Painted Grey Ware at Jajmau and the Northern Black Polished Ware at the same place and Barhat, both in District Kanpur. He also found the Painted Grey Ware at Aong, Bhanwant, IIahabas, Isai-Khas, Kaurara-Buzurg, Lakshnai, Mandai, Paigu, Panwah, Parham, Pariar, Pharengi, Rasemar, Salempur-Perhina, Shamsherganj-Maholi, Sirsaganj, Ukhrend and Uncha-Islamabad in District Mainpuri. Of these, Aong, Bhanwant, IIahabas, Kaurara-Buzurg, Mandai, Parham, Pharengi, Salempur-Perhina, Shamsherganj-Maholi, Sirsaganj and Uncha-Islamabad also yielded the N. B. P. Ware.

71. EXPLORATION IN DISTRICT UNNAO.—Shri Lakshmi Kant Tripathi of the Varanasi Hindu University explored two mounds, situated respectively to the east and west of village Thana. Of these, the western mound is more extensive and rises more than 7 m. above the surrounding plains, the eastern one being low and flattish. A large number of sherds of the Northern Black Polished Ware were collected from the rain-gullies exposed in the mound. Other surface-finds included a terracotta female head, assignable to pre-Gupta age.

72. EXCAVATION AT RAJGHAT, DISTRICT VARANASI.—In continuation of the last year's work(1960-61, p. 35) the Varanasi Hindu University, under the direction of Professor

A. K. Narain, assisted by Shri T. N. Roy, resumed excavation at Rajghat. This season's work was intended to determine the extent of the ancient township and the existence or otherwise of a ditch around the township. Accordingly, two small trenches, each measuring 12x4 m., were laid in Mounds 1, outside the protected area, and 3.

Excavation in Mound 1 revealed the existence of a small channel, 7.66 m. wide at the top and 2.35 m., deep cut through the natural soil. The channel was found to have been subsequently re-excavated, widened and flooded. A sandy layer, accumulated possibly due to the overflow of water, was clearly observed in the section. It is not unlikely that the inhabitants of Mound 1, taking advantage of the proximity of the river Varuna, trained the waters of the river along the channel and with a gradient joined it with the river Ganga on the south-western end of the habitation, thus making an effective water-barrier or moat all round the main habitation.

The other trench revealed similar evidence on the cutting of a channel. Traces of habitation were indicated in the form of five contemporary pits cut into the natural soil. Of these, two were caused by terracotta ring-wells, and the rest were unlined. One of the latter, 60 cm. in diameter, was exposed to a depth of 7-14 m., where the appearance of sub-soil water prevented further digging. Its diameter was almost uniform except at one place, where it was slightly wider. The pit was filled with loose brownish earth, occasionally mixed with ash, bones and charcoal-pieces. The pottery-contents included a large number of complete pear-shaped vases along with sherds of thick grey ware and few pieces of the Northern Black Polished Ware. Other antiquities comprised carnelian beads, bone points and a few terracotta figurines. The other unlined pits were similar in content and composition and were situated in close proximity to each other. The two terracotta ring-wells (pl. XCI A) contained fourteen and ten rings respectively; a clear-cut foundation-pit was seen in both. These pits are ascribable to the previously-ascertained Periods I B and I C. No other structural remains were met with in these trenches.

In Mound 1, where the outer slope of a clay rampart had been discovered last year, another trench in continuation of the previous one was undertaken. It was observed that the rampart had two structural phases. In the earlier phase, it was made of rammed compact brownish clay, with a basal width of 19*80 m. and rising to an extant height of 5.10 m., with a pronounced outer slope. In the succeeding phase, it was heightened by a 1.10-m. thick mud-filling. Its inner face also showed a similar patchwork of mud. Associated with the latter phase was a drain passing close to a soak-pit. Later on the drain was silted up and fell into disuse. Remarkable well-preserved impressions of feet were noticed over the silted drain (pl. XCI B).

Period II was represented in the cutting by two layers, the upper one being composed of ash and burnt charcoal, ranging in thickness from .32 to l.10m., indicative of a conflagration in the post-Mauryan period. The same layer also yielded about one thousand pieces of bone points, including arrow-heads (pl. XCIII A), besides a few of iron arrow-heads and charred grains. Three large hearths belonging to this Period, one of them with well-laid brick courses at both ends, also got destroyed by the conflagration. The exact use of these hearths is not known.

Horizontal excavation in a part of Mound 1 exposed a large number of baked-brick structures of Periods III and IV (pl. XCII A).

Other finds recovered from the excavation included a large number of terracotta human (pl. XCIV A) and animal (pl. XCIV B) figurines, seals and sealings (pl. XCIII B), beads variously of terracotta, carnelian, agate, jasper, etc., and miscellaneous objects including a well-shaped die or gamesman of ivory.

Thanks to the courtesy of the Sarva Sewa Sangh, it was possible to excavate a small trench on the land belonging to the Sangh. The plan of a domestic kitchen, complete with an oven, a floor and two storage-jars, belonging to Period IV (pl. XCII B), was exposed.

WEST BENGAL

73. EXPLORATION IN DISTRICTS BANKURA, BIRBHUM, BURDWAN, HOOGHLY, JALPAIGURI AND MIDNAPUR.—In the course of exploration the Department of Archaeology, Government of West Bengal, found microliths and flakes (pl. XCV A) at the following sites: Siromonipur in District Bankura; Baghmuri, Chella, Chipkuthi, Giridangal, Hetampur, Nalhati (hill of Devi Lalatesvari), Shyambati (Bolpur) and Siura-Pahari in District Birbhum; Damundihi, Basantapur, Goswamikhanda and Kalikapur in District Burdwan; and Astajuri, Bhagabandh, Chilkigarh, Gidni, Khunkrakhopi, Nunia and Sahari in District Midnapur. Apart from microliths, a few ring-stones were also recovered from Khunkrakhopi and Organda in District Midnapur.

At Basantapur and Bhedra sherds of the painted black-and-red and bright-red wares, besides microliths, were discovered.

At Saptagram, on the bank of the river Saraswati, a few sherds of the Rouletted Ware, black ware and medieval pottery, besides architectural members detached from Brahmanical shrines, were found. Extensive ruins of the Pala period were noticed at Lohapur in District Birbhum.

A hoard of one hundred and seventeen silver punch-marked coins (pl. XCV B), bearing rare aniconic symbols and human figures, originally unearthed at village Tilora, was acquired.

Exploration also revealed mounds and sculptures at Uchhalan in District Burdwan, ruins of stone architecture on the mud ramparts of Garh-Mandaran in District Hooghly, massive brick fort by the side of the river Torsa in District Jalpaiguri, and the early medieval temples at Nunia near Gidni in District Midnapur.

Shri D. Sen, assisted by Shri A. K. Ghosh, and Shrimati M. Chatterjee of the Prehistory Section, Department of Anthropology, University of Calcutta, carried out an exploratory survey in District Bankura. Several Early Stone Age sites were discovered along the valleys of the Dhalkishore, Kansabati and Kumari. The industry was essentially Abbevilleo-Acheulian in type. Artefacts comprising choppers, on pebble and core, both unifacial and bifacial, handaxes and cleavers on core and flake, and scrapers on core and flake were found to occur in lateritic gravels. Typologically, this industry recalls those of Singhbhum and Mayurbhanj.

Shri A. K. Ghosh, under the guidance of Shri D. Sen, discovered several lithic sites, such as Astajuri, Bhedakui, Bamandih and Nayagrah in District Midnapur. The tools included choppers, handaxes, cleavers, scrapers and awls and were found embedded in the laterite or placed in the scree-deposits.

Microliths comprising blades, knives and scrapers, together with cores, were found mostly on the high grounds near Sildah.

Several neolithic implements like celts, pounders, ring-stones, etc., were found on the surface near Belpahari.

74. EXCAVATION AT PANDU, DISTRICT BURDWAN.—With a view to investigating the general stratigraphic sequence, the Department of Archaeology, Government of West Bengal, under Shri P. C. Das Gupta, assisted by Shri D. K. Chakravarty and Shri S. C. Mukherjee, carried out trial-excavation at Pandu-rajar-dhibi at Pandu.

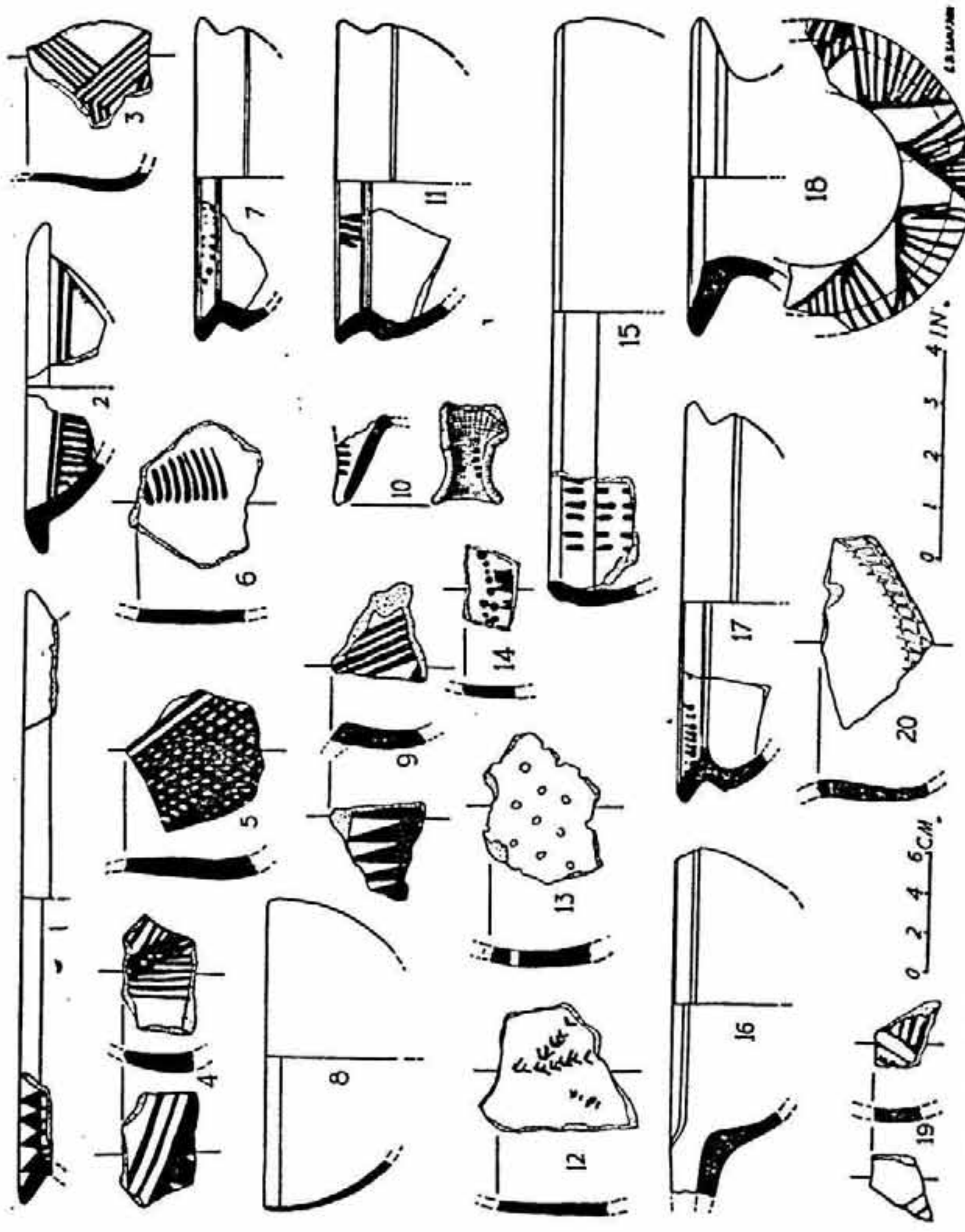


FIG. 21. *Pandu:* 1, 4, 5, 9, 12, 16, 18 *and* 20, *Period II;* 10 *and* 13, *Period III;* 2, 6, 7, 11, 14, 15, 17 *and* 19, *Period IV;* 2 *and* 8, *Period V*

The ancient mound of Pandu-rajar-dhibi, literally 'mound of king Pandu', lies on the southern bank of the river Ajay, about 10 km. from the Bhedia railway-station. Four trenches, RDB-I to RDB-IV, were dug, one each respectively on the northern slope, to the east about 200 m. away, where surface-collection had formerly yielded fragments of painted wares and channel-spouted bowls, the top and the southern slopes; among them, trenches RDB-I and RDB-IV afforded a continuous sequence from the earliest to the end of the occupation at the site.

A succession of five cultural Periods was met with at RDB-I, which was dug down to a depth of 5'75 metres below surface.

Period I was characterized by the use of ill-fired hand-made pale-red, grey or black wares of thick fabric showing impressions of paddy-husk in core-sections.

Period II was marked by new influences and materially advanced traits. There was evidence of a smooth lime-plastered floor (pl. XCVII A) in a large room or hall and different pottery-traditions like black-and-red ware and a few sherds of the bright-red ware bearing painted designs in black (fig. 21, 1, 4, 5, 9, 12, 16, 18 and 20). The types in the former included the lipped bowl, while in the latter the shallow bowl, sometimes with stems, was common.

Period III was distinguished by the occurrence of a double row of terracotta ovens (pl. XCVII B), numerous channel-spouted bowls (fig. 21,10) in black-and-red ware, bright-red ware painted in black or whitish pigment and black-and-red ware, painted in translucent white and occasionally in cream pigment, besides the perforated ware (fig. 21, 13). Whereas the painted designs on black-and-red ware mainly consisted of rows of uprights, dots, oblique lines, etc., the patterns on the bright-red ware comprised simple bands, lattices, wavy lines, stepped chevrons and dots (pl. XCVIII A). Such paintings occur on pottery in Periods II, III and IV and in few cases even in Period V. Copper points and beads of semi-precious stones formed the other finds of the Period. A double row of terracotta oven built at right angles to each other also belonged to this Period, which came to an end by an extensive conflagration.

In Period IV the channel-spouted bowl in black-and-red ware and other characteristic painted wares (fig. 21; pl. XCVIII A) and incised and perforated wares continued, though in lesser number (pl. XCVIII B). Of the channel-spouted bowl, those recovered from the earlier levels were finer in fabric and were painted in a fugitive white pigment, while those from the later levels were coarser in fabric and showed a variant form of the spout.

In Period V the painting-tradition in pottery deteriorated but retained a feeble continuity of the material culture of Periods III and IV. Thereafter, the site appears to have been discarded.

Trench RDB-IV, on the top of the mound, revealed the same sequence of five Periods. In the strata assignable to Period II, a structure of unusual interest was found, viz. a pier-like construction paved with terracotta nodules washed with lime and showing a ramp or stair-case at the north-eastern corner and post-holes on the surface. The exact nature of this structure still remains to be determined.

Among the incised pottery from Period III special mention may be made of a fragment of a dish of fine black burnished ware, decorated with incised wavy lines and a pea-hen or crane holding the zigzag form of a serpent by its bills (pl. XCIX B). A celt and an iron arrow-head (pl. XCIX C) also belonged to this Period. Signs of conflagration were noticed in this trench as well.

In Period IV an arrow-head of iron with a medial ridge and hollow tang (pl. XCIX C) was recovered, besides the normal painted wares and channel-spouted bowls.

Period V yielded a large channel-spouted bowl of ill-fired black-and-red ware (pl. XCIX A) and painted pottery. Besides, foundations of a baked-brick (45 x 25 x 5 cm. and 40x20x5 cm.) structure were also noticed. A mutilated terracotta headless animal, probably a pig, also belonged to this Period.

Trench RDB-II, near the edge of the Damodar Valley Corporation canal, was found to be much disturbed as indicated by large pits. Remains of Periods I, IV and V were encountered.

In one of the pits belonging to Period V were found a microlithic tool and a flake, besides a copper chisel with pointed tang (pl. XCIX D).

Trench RDB-III, at the foot of the southern slopes of the main mound, revealed strata of only Period V, represented by a burnt-earth floor. The pottery included the black-and-red ware and a large storage-vase of thick fabric.

The animal-remains recovered from the excavation were examined by Professor N. K. Bose. They included the domestic pig *(Sus scrofa cristatus* Wagner) from Periods III and IV, the *sambhar* deer *(Cerves unicolour* Kern) from Period III and the humped bull *(Bos indicus* Linn) from Period IV.

Although it is difficult to ascertain the precise chronology of the sequence, the occurrence of the painted black-and-red ware and channel-spouted vase (fig. 21) vaguely resembling that from Ahar, Gilund and Navdatoli, may provide some comparable horizon. The hand-made pottery of Period I, however, stands so far unparalleled.

75. EXPLORATION IN DISTRICTS 24-PARGANAS AND WEST DINAJPUR.—The Asutosh Museum, under Shri K. G. Goswami, explored Hadipur, Shanpukur, about 3.21, km. south of Khana-Mihirer-Dhipi, and some villages about 3 km. north, on the bank of the river Padma. Of these, Hadipur yielded good specimens of the patent Northern Black Polished Ware and grey ware, besides a terracotta female figure (pl. CI C) holding a lotus-stalk in both hands, possibly representing the goddess Lakshmi.

Shri P. C. Das Gupta of the Department of Archaeology, Government of West Bengal, also collected pottery, beads, terracotta figurines of Sunga-Kushan style, toy-carts envisaging Vedic gods (pl. XCVI B), plaques depicting *mithuna* and a warrior riding a griffin from Chandraketugarh and Harinarayanpur, besides a terracotta figurine of the mother-goddess from the vicinity of Bangarh in District West Dinajpur (pl. XCVI A).

Among the finds from West Dinajpur was a miniature temple with Vishnu (pl. XCVI C).

76. EXCAVATION AT CHANDRAKETUGARH, DISTRICT 24-PARGANAS.—In continuation of the earlier work (1960-61, p. 39),the Asutosh Musuem of the University of Calcutta, under Shri K. G. Goswami, resumed excavation at the mound of Khana-Mihirer-Dhipi.

The digging in the northern part of the mound revealed eight occupational Periods. This part of the mound was perhaps the centre of religious activity in Periods VII and VIII.

Period I was represented by strata above the natural soil, which could not be reached on account of the water-table.

Period II was distinguished by the occurrence of a few sherds of the grey ware of coarse variety with painting (pl. CIII, 1-3) and the distinctive Northern Black Polished Ware. Some of the sherds bore graffiti (pl. CIII, 4-6). A fragmentary terracotta chariot (pl. CII A) drawn by two headless animals (horses?) with their foreparts decorated was a noteworthy find in this deposit. The period may be ascribed to *circa* sixth-third century B. c.

Period III was characterized by a large quantity of pottery comprising the lipped basin, dish with concentric grooves on the inner base and stamped vase and decorated

caskets (pl. CV). Some of the vases showed painted designs, carelessly executed in black over red surface (pl. CIV). Noteworthy of this Period, however, were the terracotta figurines, prominent amongst them being a terracotta toy-cart showing a human figure, probably god Indra mounted on elephant Airvata (pl. CI A), terracotta plaques showing an exquisitely-executed female figure in a dancing-pose (pl. CII B and C) and other animal (elephant etc.) chariots (pl. CI B). A fragment of dish of grey ware bearing on the inner surface a few letters of the early Brahmi script reading *Jaju* also belonged to this Period (pl. CV, 1). House-roofs were generally built of tiles with wooden posts.

Period IV yielded uninscribed cast copper coins and many terracottas including an animal (deer) chariot (pl. CII D) and a hand-made archaic mother-goddess (pl. CII E). Lumps of agate and quartz, together with some unfinished beads found in the deposits of this Period, indicated the existence of a factory-site. The Period came to a close in *circa* first century B.C.

Period V, ascribable to *circa* first century B.C. to first century A.D., also showed some remains of brick structures. A fragment of dish bearing two letters of an incomplete Brahmi inscription reading *te-i* and caskets in the N. B. P. Ware, along with the Rouletted Ware, formed the noteworthy finds of the Period.

Period VI, falling between first and second century A.D., yielded terracotta plaques, Rouletted Ware (pl. CV, 5), beads, cast copper coins, etc. A few greyish sherds bearing a peculiar painting in black depicting zigzag and wavy lines were also found in different levels of this Period.

Period VII, belonging to *circa* third to sixth century, was perhaps the most flourishing Period of the site. A brick structure with mouldings and offsets characteristic of the early Gupta period belonged to this Period. This structure showed two phases indicated by later repairs (pl. C A).

Period VIII, extending from the seventh to tenth century, was associated with a small brick temple, 5.94 m. square, with a central square pit showing descending offsets to a paved floor, '40 cm. square in area, closely resembling the one discovered previously (1960-61, pl. LXV A). Several layers were noticed inside the pit (pl. C B).

One of the outstanding finds of this year's excavation was a small bronze image of a female deity (pl.CII F) with a mirror in her left hand and an indistinct animal indicated on the pedestal as her vehicle. The image, picked up from a higher level of the temple-area, appears to be the workmanship of the late Gupta period.

II. EXPEDITIONS OUTSIDE INDIA

After the epoch-making expeditions of Sir Aurel Stein in Central Asia, the last of which took place in 1913-14, the Archaeological Survey of India had had no occasion to send any mission outside India for explorations and excavations, except a brief one to Afghanistan in 1956. That this year the Survey sent out three expeditions, one to Egypt and two to Nepal, is therefore an event of considerable significance.

Archaeologists and others alike are perhaps familiar with the story of the Aswan High Dam. However, to recall its relevant portions in brief, the Government of the United Arab Republic, with a view to providing irrigation-facilities for the higher lands on either side of the Nile and to generating more hydroelectrical energy for the fast-growing industries of the country than are available at present, is building a new dam, called the Sadd-el-'Aali (High Dam), a few kilometres upstream from the present dam at Aswan. When completed, the High Dam will raise the water-level from the present height of 121 m. to that of 182 m. above sea-level. The result will be a vast lake, stretching over nearly 480 km. upstream from Aswan—300 km. in Egyptian Nubia and 180 km. in Sudanese Nubia—and extending, at places, up to 25 km. in width. Under the water of this lake will get submerged, unless they are timely rescued, a large number of archaeological relics—rock-cut and structural monuments, buried sites and cemeteries and the like. Finding its own resources insufficient to cope with the situation, the U.A.R. Government sought the assistance of the UNESCO in the matter, which, in turn, issued a world-wide appeal for technical as well as financial help.

In response to this appeal, the Government of India, at the initative of its Minister of Scientific Research and Cultural Affairs, Professor Humayun Kabir, decided to send an expedition to carry out excavations in an area allotted to it. Led by Shri B. B. Lai, Director of the School of Archaeology of the Survey, the expedition comprised four other members : Shri K. M. Srivastava, Senior Exploration Assistant, Shri R. Chatterji, Photographer-Instructor, Shri S. P. Jain, Surveyor-Instructor, and Shri Amir Singh, Draftsman. The expedition reached Egypt about the middle of January 1962 and left for home at the beginning of May. The Director General of Archaeology in India visited the excavations towards the end of March to give finishing touches to the field-work, and the Indian Ambassador in Egypt, H.E. Shri Azim Hussain, also paid a visit when the work was on.

In various ways, particularly regarding the allocation of sites for excavation, camping and labour arrangements, division and despatch of antiquities, etc., help and advice were received from several officials of the UNESCO and U.A.R. Government and other individuals, amongst whom particular mention may be made of the following : Drs. van der. Haagen and Louis-A. Christophe, respectively Head (in Paris) and Regional Representative (in Cairo) of the UNESCO's special section on Nubian Monuments; Drs. Mohamed Anwar Shoukry and Mohmed Madhi, Director General and Sub-Director General, Mr. Zakirizkalla, Head Assistant (Office), and Messrs Ahmad Tahir and Abdin Siam, Inspectors, of the Department of Antiquities, U.A.R.; Drs. Victor and Hasan Abd-ur-Rahman, respectively Director and First Curator of the Egyptian Museum, Cairo ;

Professors Abu Bakr and Zaki Ali of the University of Cairo; and, last but not least, Professor W.B. Emery of the University of London. While in India, the leader of the expedition had received valuable guidance from Dr. M. Riad Eletr, Cultural Attach^ to the U.A.R. Embassy in India.

The site originally allotted to the expedition was a small-sized settlement of what are known in Egyptian archaeology as the A-Group people, located near the village of Afyeh, on the west bank of the Nile, 15 kilometers north of Aneiba, the headquarters of Egyptian Nubia. The excavation of the site was completed by the expedition within three weeks, whereafter a request was made to the U.A.R. Government for further allotment. As, however, most of the other areas had already been allotted to other expeditions working in the region, no further substantial allotment was possible. Under the circumstances, the Expedition could carry out only a survey of the terraces of the Nile near Afyeh and another small-scale excavation at a cemetery, of the C-Group people, which lay near by, to the west of the neighbouring village of Tumas. The results of the work carried out by the Expedition in these three parts are summarized below (pp. 66-70) in a chronological order of the finds.

In May 1960, in pursuance of a proposal received from the Indian Aid Mission, Nepal, the Director General of Archaeology in India was deputed by the Government of India to advise His Majesty's Government of Nepal on the re-organization of the archaeological service of that country. Of the many recommendations of the Director General, two were implemented this year, and two expeditions were sent out, respectively for the exploration of the central part of the Nepalese *tarai* to be followed by the excavation of suitable sites, and an investigation and study of the Pleistocene geology and Stone Age potentialities of the Katmandu valley. The results of both the expeditions, the funds for which were provided by the Indian Aid Mission, are given below (pp. 70-76).

The expedition in the *tarai* was led by Shrimati D. Mitra, Superintendent of the Eastern Circle of the Survey, who was assisted by Shri S. Mukerji, Technical Assistant, Shri A. K. Ghosh, Draftsman, Shri K. C, Das, Photographer, Shri S. Ghosh, Surveyor, Shri R. C. Roy, Upper Division Clerk, and Shri B. Singh, Driver-Mechanic. Three members of the Department of Archaeology of the Government of Nepal, headed by Shri Janaklal Sharma, were deputed by that Government to join the Expedition.

The expedition started its work in February 1962 and completed it in about four months. With Lumbini as its temporary headquarters, the party covered much new ground and discovered and examined a large number of sites in Bhairwa and Taulihawa Districts and later on shifted itself to Ramghat for the excavation of the early city-site of Tilaura-kot and the early medieval temples at Kudan. The Director General of Archaeology in India inspected the excavations and a few sites in May. The Director of Archaeology, Nepal, came to the excavations twice.

The other expedition in Nepal, which worked in the Katmandu valley in September and October 1961, was headed by Dr. R. V. Joshi, Superintendent for Prehistory in the Survey, who was accompanied by Shri E.R. Sathe, Surveyor, and Shri M.U. Kuraishi, Photographer, Shri Janaklal Sharma representing the Government of Nepal. Though the Expedition did not find any lithic tool, it collected valuable data on the Pleistocene geology of the valley.

Shri S. S. Bhandarkar, Member (Education), Indian Aid Mission in Nepal, chiefly to whose initiative the expeditions owed their origins, took great interest in the work of both the Indian teams.

EGYPT

1. EXPLORATION OF THE TERRACES OF THE NILE NEAR AFYEH.—Although no Stone Age tools had earlier been reported from the area around Afyeh, the general setting of the river, with at least one wide terrace on one of the banks (western in this case), and the availability of plenty of raw material on this terrace, in the form of pebbles of fine-grained chert, jasper, etc., made the expedition think that it was worth while to look for such tools in the area. The exploration was fruitful.

On the surface of the terrace were encountered tools which, on the basis of their size, typology, raw material and state of preservation, could easily be classified into two different categories. To one of them belonged medium-sized tools of quartzite, silicrete and ferricrete sandstones, rhyolite, etc., comprising round scrapers and side-scrapers, broad flake-blades and even small handaxes on flakes simulating the point (pl. CVI). While some of the tools looked fresh, a great majority of them were weathered or rolled. To another category belonged smaller tools (pl. CVII) of finer stones like chert, jasper, chalcedony, quartz, carnelian, etc., the types represented being scrapers of the various kinds, points sometimes with an incipient tang, blades, and even a lunate—but no triangle or trapeze. Interesting also was the occurrence of small-sized pebbles of the same finer stones in various stages of workmanship. While many of them may have been mere cores, certain other examples, judging from the finer flaking on them, seem to have been used as tools, perhaps choppers. (The illustrated tools, however, do not include the more worked specimens amongst these miniature 'pebble-tools').

As one climbs the hillocks, through which the Nile passes in this area, one comes upon a flat stretch of land, considerably higher than the terrace referred to above. On it was found the same kind of medium-sized tools as was recovered from the lower terrace. A significant differentia, however, was that the tools in this case were almost invariably fresh, in contrast to the rolled specimens of the lower terrace, signifying that, in all probability, it was from here that they had been washed down to the lower terrace. Another noteworthy point was that on this higher flat there was a conspicuous absence of the small-sized tools of the lower terrace, which implied that they were associable only with the lower terrace and were, therefore, definitely later than the medium-sized tools. This inference on the sequence *inter se* of the two industries is indeed in keeping with the internal evidence, for, on typological grounds, the medium-sized tools are ascribable to the Middle Stone Age and the smaller ones to the Late.

2. EXCAVATION AT AFYEH.—As stated earlier, the original allotment to the expedition was of a settlement-site at Afyeh, which had been guessed to cover an area of about 100 X 80 m. However, on actual excavation it was found to be limited to a maximum extent of about 1000 square metres only. The depth of occupational strata ranged around 50 cm., within which were met with two structural phases, both ascribable to the same culture, viz. that of the A-Group people.

In both phases the houses were made of stone rubble set in the Nile mud, the walls, in all likelihood, being plastered also with the same mud. The floor consisted, again, of the same material, there being an occasional soling of pebbles. No evidence, however, was encountered about the roofing-material.

On plan, the houses seemed to be quite sizable. In one case, as many as six rooms were noted, with the possibility of there being another two rooms in the complex, of which the complete plan, however, was not available (pl. CVIII A). Interesting evidence was obtained regarding the door-system. In two cases, one of each phase, door-sockets were observed in a stone (pl. CVIII B) on the right-hand side as one entered the concerned

room. There was no socket in any of the stones on the opposite side. This suggested that there was only a single-leaf door, a system which, incidentally, is prevalent in the area even now.

The inhabitants were essentially in a stage of rural economy, domesticating animals and carrying on agriculture. Amongst the carbonized cereals discovered at the site, one may off-hand identify (a detailed examination by an expert is under way) the wheat, barley, lintel, gram, peas, etc., (pl. CXI A). These specimens came in plentiful from a level ground adjacently outside a house, where they had got charred perhaps while temporarily stacked, maybe after husking or some like operation. However, the presence of clay-lined pits, sometimes up to 2 m. in diameter and l.5O metres in depth, suggests that they might have been used for storage, although it may be added that no cereals were found in them (unless it is assumed that whatever was there had decomposed beyond recognition).

The crops were reaped with sickles made of chert blades, presumably inserted into a wooden handle; the inserted edge of the blades was thus blunted while the cutting-edge was serrated (pl. CIX). That these blades were used for such a purpose is suggested by the gloss or shean which they acquired evidently in the process of cutting the sileceous straw. Some of the chert implements were used as borers (pl. CIX). For the felling of trees and like operations were used polished stone axes (pl. CX A), hafted on to wooden handles. Then there were the bone tools, comprising awls and piercers (pl. CX B). And, finally, mention must be made of the find of a chisel of copper—its edge partially damaged because of use (pl. CX C)—which marks a definite step over a purely neolithic stage.

For grinding cereals were used saddle-querns and mullers, both of stone. Also used for grinding, perhaps of some finer material, were spheroid balls with partly-flattened surface, there still being the remnants of a red-coloured substance in one recovered specimen. It is also likely that some of the balls, without the flattened surface, might have been used in slings, but nothing definite can be said in this connexion.

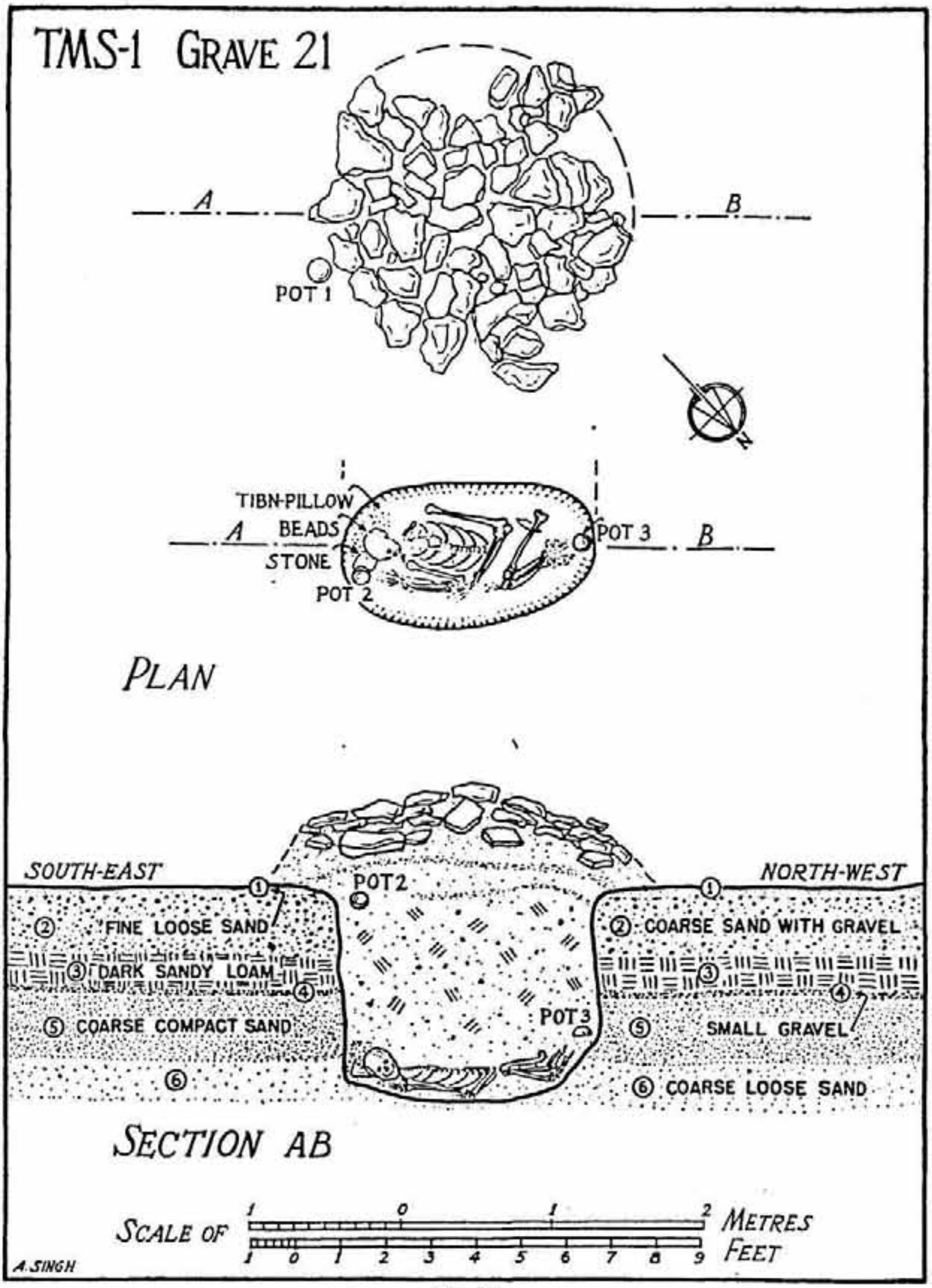
Although no complete pots were found, the potsherds were enough to attest to the pleasing wares that had been used by the A-Group people : pots with a light-red to creamy surface, painted over in deer-red colour with a variety of linear and other designs; and others with a buff surface, the painted designs being executed in a chocolate or black pigment. More common, however, were bowls of red ware with distinctive pebble-burnished designs on the exterior as well as interior.

Small-scale that it was, the present excavation did not throw much light on other aspects of the art of the people. Mention may, however, be made of an animal clay figurine, which, though primitive, is forceful.

The use of ornaments by the people was attested to by the occurrence of beads of shell, steatite, faience, agate, carnelian, etc., and of bangles and rings of shell. Noteworthy also was the presence of stone and terracotta pallets over which were ground cosmetics with small-sized pebbles (pl. CXI B).

It has so far been thought that the A-Group people in Nubia may have roughly been pre-Dynastic to early Dynastic in date, say with a central point around 3000 B.C. However, two samples of charcoal from the present excavation, put to Carbon-14 test in the Tata Institute of Fundamental Research, Bombay, have given a more precise dating to the site. The two samples, associable respectively with the lower and upper structural Phases, have given the readings of 4540± 120 B.P. and 4445 ±125 B.P. Thus, the site may broadly be dated from *circa* 2600 B.C. to 2400 B.C.

3. EXCAVATION AT TUMAS.—The last item tackled by the expedition related to a cemetery of the C-Group people, located to the west of the village of Tumas and about



TMS-1 GRAVE 21
A
B
POT 1
TIBN-PILLOW
BEADS
STONE
POT 2
POT 3
PLAN
SOUTH-EAST
NORTH-WEST
POT2
① ② FINE LOOSE SAND
③ DARK SANDY LOAM
④
⑤ COARSE COMPACT SAND
⑥
② COARSE SAND WITH GRAVEL
POT 3
⑤ SMALL GRAVEL
⑥ COARSE LOOSE SAND
SECTION AB
SCALE OF
METRES
FEET
A. SINGH

Fig. 22

half-a-kilometer from the A-Group site of Afyeh. As many as one hundred and nineteen graves were excavated (see cover), a great majority of which, however, were found to have been plundered.

The structural features of and the disposal of the dead body in a normal grave of

B

this Group may briefly be described as follows (fig. 22). First, an oblong but round-ended pit was dug into the ground. On an average, it measured 1.50 to 2 m. in length, a

POT

metre in width and 1 to 1.50 m. in depth. On its floor was placed the human body in a crouched position and turned slightly on the right side (pl. CXIII A). Following the orientation of the pit, the body was also oriented from north-west to south-east, the head being on the latter side. The dead wore their clothes, of which traces were found in the excavation. Occasionally, ornaments like the necklace, bracelet and anklet, made mostly of steatite, faience and shell beads, were met with (pl. CXVII). The find of decomposed fragments of mat suggested that the body was presumably wrapped in it. Under the head were often found the remains of a tibn-pillow, there also being

POT 3 *R*

present, in one case, a small flat stone as a head-rest.

The most noteworthy amongst the funerary objects was the pottery : bowls of all-black and black-and-red wares (pl. CXV A); jar-stands of red ware (pl. CXV B); and vases and jars of red ware and of a buff-to-white ware known as the Keneh Ware. Many of the bowls, both in all-black and black-and-red wares, bore fine, sometimes intricate, incised designs on the exterior (pls. CXV C and CXVI B). Often the incisions were filled in with a whitish substance. A particularly noteworthy design was that of a row of human figures (females ?) in a dancing attitude (pl. CXVI A). On some of the pots graffiti were also observed. The pots were found to be placed variously : sometimes at the body-level towards the feet, at others, at the brim-level of the pit, on the head-side; but more often than not immediately outside the grave, juxtaposed to the stone-circle (see below) enclosing the pit, mostly, again, on the head-side.

Amongst other items of grave-furniture mention may be made of a quartz dish with kohl-marks and the fragment of a carved wooden toy or mirror-handle (?). Further, a seal of steatite (pl. CXVIII A) found in the debris overlying some of the plundered graves might have also belonged to one of them.

The next step, after the placing of the body and of relevant grave furniture into the pit, was, obviously, to fill it up with the same earth which had been taken out in the process of digging it. The loose earth, now being greater in volume than in its earlier compact form, naturally overflowed the brims of the pit. The tumulus formed by this excess earth was further surrounded and capped by stone rubbles, which, quite often formed a regular circle on plan, the height sometimes going to even over half-a-meter (pls. CXII and CXIV B).

While the aforesaid was the normal pattern of the grave, there were variations too. For example, in one case the grave pit, rectangular on plan, was lined with stones set in the Nile mud and over it were placed a few slabs to cover it up (pl. CXIV A). In another case, twin pits, separated from each other by a low earthern partition-wall, lay enclosed within a single stone circle : the graves had been plundered, but, judging from the few bones that were recovered from them, it was evident that the pits had contained burials of children, who, in all likelihood, had died about the same time. In still another case, the pit measured as much as 2.80 X 1.80 X 2 m. As, however, it-had completely been plundered, it was difficult to find an explanation for the enormous size.

Intruding into these C-Group graves were also a few others, ascribable to the New Kingdom and characterized by a different kind of orientation and disposal of the body—it lay supine, in an extended position, the head being to the north-west (pl. CXIII B).

As already stated elsewhere, many of the graves had been plundered. The excavation, however, threw some interesting sidelight on the date of the plundering itself. For, in one of the graves was found a modern cap (pl. CXVIII B), evidently left behind by one of the plunderers. In another grave was encountered a bead (pl. CXVIII C), the material of which—plastic—showed that the plundering was not too old an affair. And, finally, in still another grave lay the discarded burnt end of a cigarette (pl. CXVIII C) bearing the trade mark: 'Coutarelli Freres, Alexandrie le Caire.'

The date of the C-Group people is believed to be around 1500 B.C. However, the large number of graves that one usually encounters at C-Group cemeteries makes one think that the culture might have dragged on well to the close of the second millennium B.C. (A sample from these graves, sent out only recently for Carbon-14 test, might perhaps yield some useful information on this point).

In winding up this note on the excavation at Tumas, it may be worth while to state that the bowls of black-and-red ware and jar-stands of red ware, referred to in the preceding paragraphs, are almost identical with those found in the megalithic tombs of south India. Even the graffiti on the pottery of the two areas bear some resemblance to one another. On the structural side too, there is not a little similarity. For example, while the enclosing stone-circle is prominent feature in both the cases, even the stone lining of the grave-pit and the covering stone slab ('capstone'), so common in south India, find their prototype in one of the Nubian examples referred to above. The obvious questions then are : Can all this similarity be explained away by calling it a mere chance ? Or, does there lie behind these resemblances something more than what meets the eye ? Before, however, letting imagination run riot, let it at once be added that between the two sets there are several items of dissimilarity too. For instance, while the Nubian examples are definitely on the other side of 1000 B.C., the south Indian examples, for all we know at the moment, are not likely to go beyond that line. Again, no iron has so far been reported from the Nubian graves, whereas iron implements occur in profusion in the south Indian examples. Last but not the least, mention must be made of the fact that whereas in the Nubian examples it was the whole body that was interred, in the south Indian megaliths fractional burial was the usual practice. Do these factors, then, completely brush aside the similarities? Or, do the dissimilarities themselves provide the answer? From Nubia to south India there is a distance of nearly 4000 kilometres. Any movement of people postulated between such wide-apart locations is likely to take a few centuries, if not more. With this as a probable explanation of the time-factor, one might perhaps find answers to the other queries as well. For example, the use of iron might have been learnt by the C-Group people during the course of their migrations or within Nubia itself as a result of contact with iron-using peoples. Lastly, the inhumation of the full body is not altogether unknown in Indian megalithic context: Maski is one such example. Before, however, anything final can be uttered in the matter, it would be worth while to explore the intermediary regions of south Arabia and south Iran.

NEPAL

4. EXPLORATION IN DISTRICTS BHAIRWA AND TAULIHAWA.—The following sites were visited in the District of Bhairwa, from Lumbini, the starting-point of the exploration, which itself was found to contain sherds of grey ware and antiquities ranging from the third century B.C. to at least the ninth century A.D. A large number of antiquities exists (pl. CXIX) in a local collection.

The low flattish mound of Nipania, which is under cultivation and has considerably been cut away by the river Dano, once nourished a prosperous habitation, as is evident from its extent. The site is particularly rich in sherds of grey, black polished and red wares. In the red ware are recognizable many shapes found at Ahichchhatra and Hastinapura in association with the Northern Black Polished Ware. Cooking-vessels with triangular lug-handles also appear in this Ware. Dishes are fairly common in grey and black-slipped wares. The site also yielded terracotta animal-figurines and disks, beads of terracotta and semi-precious stones, glass bangles and a Muslim coin.

To the north of the village of Piprahwa and on the left bank of the Dano is a low mound. The surface-pottery is entirely of red ware and does not include any early shapes.

Near the village of Paisia are three mounds. They contain the ruins of brick structures, possibly temples dedicated to Brahmanical deities, mutilated images of whom lie on the top of the mound.

The mound at Karidah also represents the ruins of a Brahmanical brick temple, as suggested by the find of a fragmentary Brahmanical image at its top.

In a rain-gulley within the *mauza* of Parora were found a large number of glazed sherds, possibly of medieval date, and some sherds of red ware.

At a locality called Sagarwa, near Muhammadpur, are the ruins of a Saivite temple, now in the last stages of decay.

The site visited last in the District of Bhairwa was Saina-Maina, already reported upon by P.C. Mukerji, who had visited it in 1899.

The following sites were visited in the District of Taulihawa. The site of Pipri is now greatly denuded, but its high antiquity is assured by dishes of grey and black-slipped wares, red-ware vessels with triangular lug-handles, so-called Sunga and Kushan terracottas and copper Kushan coins. Remains of brick structures are also visible.

Contemporary with Pipri was the low but extensive site of Kadzahawa, rich in terracottas, copper Kushan coins and sherds of grey and red wares.

Affiliated to Kadzahawa was the low mound of Lamtiya which yielded sherds of red ware, dishes of grey ware, a copper coin and various terracotta objects including sealings, figurines and beads. Vessels with triangular lug-handles are particularly prolific.

The red-ware pottery of Bahmni includes vessels with triangular lug-handles, lids with a central cup and basins with inconspicuously-collared rim. Some terracottas, possibly of the Kushan period, were also noticed.

At Dohni were found two sculptures, one each of Vishnu and Surya, besides an old *Siva-linga.* Remarkable for its fine workmanship, the image of Vishnu is stylistically ascribable to the Gupta Period.

At Patna was found a fine image of Ganga stylistically datable to about the tenth-eleventh century. In view of the absence of any ancient ruins in the neighbourhood, the possibility of the image having been brought from some other site cannot be ignored.

Sonagarh, at the junction of the Bel and Sukhbel, was once the site of a flourishing religious establishment, as is evident from the ruins of brick temples and other structures. Some of the temples were made of ornamental bricks carved in the tradition of those at Kudan (below, p. 72). Particularly noteworthy among the antiquities is a fairly large image of Chamunda roughly ascribable to the ninth century.

The sites of Sihokhor, Hardewa, Daldalha, Dohni, Patharkot, Chaganth and Srinagra contained sherds of red ware. The pottery does not look very ancient.

In addition to these, fourteen sites, viz. Araura-kot, Bijua, Bikuli, Chatradi, Dohni, Siwalwa, Gotihawa, Kudan, Nigali-sagar, Sagarwa, Sisahnia, Sisania, Taulihawa and Tilaura-kot, which had been visited by P.C. Mukherji in 1899, were revisited and it was noted that while his description of the ruins was generally correct, most of the structures noted or exposed by him had suffered wanton damage at the hands of man. At one of the mounds at Chatradi was found the fragment of an image of Vishnu. The extensive habitation-mound of Sisania was found to be rich in early pottery, terracottas and Kushan coins. Two of the sites, viz. Kudan and Tilaura-kot, were excavated, the results of which are as follows.

5. EXCAVATION AT KUDAN, DISTRICT TAULIHAWA.—About 2 km. to the south-west of Taulihawa, some 3 km. to the north-east of Gotihawa, where there exists *in situ* the lower portion of an Asokan pillar, and about a kilometre to the east of the ancient habitation-site of Pipri is a group of four mounds at Kudan (lat. 27'32' N.; long. 83* 2' E.). These mounds are located on the banks of an ancient tank—two each respectively on the south and west banks.

Trenches were laid first on the northern of the two mounds on the western bank of the tank and extended subsequently to the southern. The excavation at these two mounds revealed three structures—two brick temples of considerable dimensions and peculiarities and a well.

The well, unearthed in the slope of the two mounds, had an internal diameter of 1.62 m. and was stratigraphically the earliest of the three structures. Surrounding it was a 7-m. square brick platofrm, remarkable for the ornamental treatment of its fa9ades (pl. CXX A). The latter had a recessed middle portion between the moulded base and top. The base-moulding was in the form of a *khura* with a conspicuously high *muhanti*. Projecting from the body of the *khura* were, at intervals, truncated stepped pyramids carved elegantly with beautiful compositions of floral and plant motifs. Of the top mouldings, which projected forward like corbels, only four, all carved, were extant. The receding middle portion was plain but for two projecting vertical bands relieved with ornamental tracery with floral and plant motifs. Amidst the debris found inside the well lay a fragmentary sandstone image, of which the head and right palm holding a sword were intact.

The southern mound yielded the ruins of a temple (pl. CXX B), referred to hereafter as Temple 1. This temple was of two periods. In the earlier, it consisted of a sanctuary and a compartmented porch, built almost immediately after the well. This earlier temple had already been reduced to its plinth, with a few courses of the base at odd places, when the latter temple was erected over it. Still one can easily visualize its pristine grandeur from the surviving parts of its platform, which itself was the most exquisite of its kind.

Having an overall measurement of 42 X 31 X 4.50 m., the platform was made by constructing four brick walls, on an average 2.50 m. in width, within which was enclosed some area surrounding the plinths of the sanctuary and the porch. This intervening space was packed hard with yellow clay and *kankar* nodules. The facades of the brick walls were treated luxuriantly with mouldings carved in the best tradition of terracotta architectural art (pls. CXXI and CXXII).

The sanctuary was built on a solid brick basement which evidently lay invisible below the terrace of the platform. This basement was octagonal, of which the corners were built in wedge-shaped recesses. The plan of the sanctuary immediately above the basement was also a modified octagon, as the eastern face and the half of the north-eastern and south-eastern faces were made into an oblong to provide access to the sanctum. The remaining sides of the octagon, with multiple ratha-projections and angular recesses at the junction of the sides, presented the plan of a star. Of the walls of the sanctuary and

porch, very few courses were left, which, however, made it abundantly clear that their facade-treatment was of no less magnificence.

When the sanctuary gave way, a new sanctuary (pl. CXXIII A) was built on the earlier octagonal plinth. Evidently the new builders were of poor resources and limited artistic vision, for not only did they not attempt to reproduce any carvings, but they utilized the carved bricks, recovered from the debris of the earlier temple, in the facing of the new temple in the most inartistic way. Carved bricks were also used in the core of the structure. Internally 3.25-m. square, the new sanctuary had its three sides broken into thirteen *rathas*. The maximum height of the wall available on the north face was 2-90 m. The lower portion of the exposed north and west walls had nine step-like offsets. Right in the centre of the sanctum was the object of worship, a *linga* of sandstone, with a monolithic *arghya-patta* around.

Amidst the ruins of Temple 1 were found a few carved stone fragments and two fragmentary images, one each of Mahishasuramardini and Karttikeya.

The northern mound yielded the remains of a sanctuary, called Temple 2 (pl. CXXIII B), and eleven cells in three rows, the rear row of the latter abutting against the east face of the former. The curious feature of this complex was that the foundation-plinth hardly went below the ground but was erected above the ground to a considerable height and was embedded into an exceptionally compact filling of yellowish clay and *kankar-nodules*. The filling-material, which consisted of natural soil, was possibly secured from the tank mentioned above. This filling gave the appearance of a platform around the complex. The plinth, which was of solid brickwork, was a square at the base. Gradually its three sides became *tri-ratha* and ultimately *pancha-ratha* near the top. Of the superstructure rising above the embedded plinth nothing has survived except a small fragment of the lowest portion of the base of the east face. The multitude of carved bricks that were found in the debris of this temple speaks eloquently of the grandeur of the temple in its carved brickwork when intact. Remarkable for a variety of designs and skilled workmanship, these bricks were generally in the tradition of those of the early phase of Temple 1.

6. EXCAVATION AT TILAURA-KOT, DISTRICT TAULIHAWA.—With a view to ascertaining the character of the fortification and the occupational deposit below it, if any, a small-scale excavation was undertaken at the jungle-clad, wild-animal-infested fortified mound of Tilaura-kot, which is at a straight distance of 3 km. to the north-north-east of Taulihawa (lat. 27° 32' N.; long. 83° 3' E.), the District headquarters.

A north-south trench was laid across the fortification in the northern part of the mound near its north-west corner to include the highest point of the fortification, being only a metre lower than the highest point in the whole mound. The trench was planned initially to be 29 m. in length and 7 m. in width, but was later extended by 4.5 m. on the north to cover some area outside the fortification. Owing to shortage of time, however, a width of only about 3 m. was excavated in the southern half, up to the brick rampart, which was fully exposed (pl. CXXIV A). Beyond the rampart, only a narrow strip of over a metre was excavated, in the western flank of the northern half; it was carried down to the natural soil, which, however, was reached in other parts as well of the trench.

The total thickness of the deposit, from the top of the natural soil right up to the highest point of the present surface was 3.80 m. Out of it, the pre-defence habitation, Period I, accounted for about 1.50 m. This Period had two Phases. Phase A, lying over the natural soil and below a floor of brick grits and small brick-bats, consisted of three layers and was coeval with the advent at the site of the Northern Black Polished Ware (the absence ol the Ware in the bottommost layer need not be emphasized in view of the

limited extent of the excavation). Belonging to this Phase were three ring-wells, one of which was exposed down to its bottom (pl. CXXIV B). As its bottom course lay much higher than the water-table, it is evident that it did not serve as a well in the real sense of the term. Of the remaining two, one was exposed down to its seventh course (without reaching the bottom), while the other was traced to its twentysixth ring, at which level water was encountered. Phase B was represented by the floor referred to above and two overlying layers, ending in a conflagration. Two brick structures and a ring-well with fiftythree extant rings (pl. CXXIV B) belonged to this Phase. During the Phase the Northern Black Polished Ware was in full currency. In both the Phases, red, black-slipped and grey wares, known to be associated with the Northern Black Polished Ware elsewhere in the Ganga basin, were fully represented. Some of the sherds of the red ware bore painted bands in black, reddish-chocolate and reddish-yellow colours (pl. CXXV A), while a few of the grey sherds had on them some bands and dots, painted indifferently in black (pl. CXXV B). Both the Phases yielded antiquities like beads, terracotta bangles, figurines and disks, and iron, copper, stone and bone objects. Among the objects found in Phase B, two-footed saddle-querns and coins deserve notice.

Overlying the burnt layer was Period II, characterized by the erection of the mud-rampart. The material of the rampart was evidently derived by digging the soil outside, thus leaving there a moat. This also explains the fact that the potsherds in this filling were roughly of the same types as in the preceding layers, with some specimens being somewhat worn out. The rampart-filling was rather rich in antiquities, for it yielded not only a number of the so-called Mauryan and Sunga terracottas, but also numerous beads, of terracotta, semi-precious stones and bone, punch-marked and cast coins, and other objects variously of bone, copper, stone, glass and iron.

On the sloping outer face of the rampart was a fortification-wall of bricks and brick-bats. While its inner face was found to a height of sixteen courses at the maximum, the outer face was reduced to a single course at places. The average width of this wall was about 4 m. The contemporaneity or otherwise of the wall with the mud-rampart could not definitely be established in view of the absence of a foundation-trench for the former and of any accumulation on the mud-rampart.

Immediately over the brick wall was a layer of enormous debris representing its fall. The debris naturally sloped down outside into the moat and inside towards the toe of the ramp. With the inside debris came to be mixed some late pottery.

To judge from both the excavation and the surface-finds, the site was exceptionally rich in antiquities. Thus, a small trench like the present one yielded five gold objects, sixtyfive (including two silver punch-marked) coins (pl. CXXXI), twentyseven terracotta human figurines of the third to first century B.C. (pls. CXXVI-CXXVIII C), fiftyseven terracotta animal figurines (pl. CXXIX) and two terracotta sealings (one with inscription), besides numerous terracotta wheels, bangles and miscellaneous objects, more than three hundred and forty beads and pendants of various semi-precious stones (pl. CXXX), a large number of objects of iron, copper, stone, glass and bone and a red sandstone head of the Mathura school (pl. CXXV1II D).

Noteworthy among the surface-antiquities were the so-called Panchala coins and Kushan terracottas, both absent from the excavated trench.

Tilaura-kot was identified in the past by some archaeologists with ancient Kapilavastu, but the excavation has not yielded anything to establish or disprove the identification.

7. EXPLORATION IN THE KATMANDU VALLEY.—Operating from a camp at Katmandu the party surveyed the entire valley. The major streams and their tributaries were examined

at several points, and wherever possible deep traverses were also taken in their source-regions. However, on account of paddy-cultivation and vegetation-growth on them, some of the terraces and their slopes could not be closely examined.

The valley is enclosed on all sides by hills. With a network of several tributaries, the Bagmati and the Manohara, the two major rivers in the area, drain the valley and finally discharge the waters in the south through the Bagmati. The stream-valleys are flanked by alluvial terraces. From the highest point on way to Tika-Bhairab as many as four terrace-levels could be marked. Of these, however, two surfaces, respectively at contours 4300 ft. (1310.64 m.) and 4500 ft. (1317.60 m.), are very conspicuous by their expanse and clear cliff-sections. It is interesting to note that a large number of villages in the valley is situated on these flats.

It is always convenient to check the presence of Early Man's stone artefacts in the loose gravel and sand in the river-beds. But as all the rivers had flood-water, only at a few places could such gravel be examined. The gravel comprised pebbles and partially rolled blocks of granite, granite-gneiss, schistose rocks, rarely quartzite and a little vein-quartz. In addition to the aforesaid rock-material the gravels in the southern streams contained limestone and quartzite pebbles. Nowhere was found any stone tool, be it palaeolithic or microlithic. (The couple of specimens collected from the Godavari river and near Balkhu are extremely doubtful and do not establish the existence of prehistoric implements in the valley).

The cliff-section at Bagmati, approximately below the terrace-level 4300 ft., showed finely-laminated brown-to-greyish brown clays with one or two thin bands of fine sand, overlain by loosely-cemented gravel mostly of vein-quartz. Similar sections were noticed near Gokaranathali, Sitapakha (pl. CXXXII A) and Lalitpur. At the 4550-ft. contour in the Kwaja-Khola, the section consisted of a metre of brown silt at the top, underlain by 1.50 m. of weathered gravel (pl. CXXXII B). Below this was a 3-m. thick deposit of fine sand and then again about 2 m. of somewhat cemented gravel. The bottom layer was made up of 4 m. of bluish-green sand.

Near Chapaligaon, on the left bank of the Lute-Khola, the deposits from bottom upwards were : fine sand and clay (4*50 m.), black clay (peat-like or humic mud, 1*50 m.), mixed sand and gravel (3 m.), brownish clay (1 m.), gravel (2 m.), and brown silt and clay (1 m.). In some of the sections near Sankhu there were two peat-beds, the gravel occurring in between them. The upper peat-bed was topped by brown silt.

The above are a few localities where suitable exposures were available; none of them yielded any kind of tools. At other places the slopes and tops of the terraces were under paddy-fields and were water-logged.

A cave on the right bank of the Bagmati in the cherty limestone near Chobbar is about 4 m. above the water-level. It does not contain any cultural deposit; nor were any tools found in its vicinity.

All the above-mentioned deposits observed in various sections are water-laid sediments, mostly formed in quiet waters such as in lake-basins. The finely-laminated clays do not show disturbance of laminae and recall varve-like features formed by the precipitation of fine detritus carried by the melt water of glaciers. Probably these deposits were formed in the Last Glacial or Post-Glacial Period. The survey on the hill-flanks, which, however, could not be thorough on account of heavy vegetation and wet surface, did not reveal any morainic deposits. In exposed sections within the valley also no moraine was seen underlying the alluvial material. It was learnt that borings carried out in some parts of the valley had penetrated through well over 250 m. of sand and clay-beds without any coarser sediments or the solid rock being encountered. A detailed study of these stratified

sediments would have been interesting and might have thrown some useful light in the environmental aspect had the valley yielded some artefacts of the Early Man.

The Survey has thus provisionally established the absence of any remains of the palaeolithic (or even the microlithic) man in the Katmandu valley. But it is desirable to follow the lower course of the Bagmati, particularly where it enters the *tarai* region after traversing the Mahabharat and the Siwalik ranges and thus to explore its valley fully. Also, it would perhaps be fruitful if a similar survey is carried out in the Rapti and Narayani basins, which are fairly wide and at lower altitudes. Likewise, it will be very advantageous if early steps are taken rapidly to traverse the concerned regions before they get submerged under the waters of the dams which are under construction on the Kosi and Gandak.

III. EPIGRAPHY

SANSKRITIC AND DRAVIDIC INSCRIPTIONS[1]

ANDHRA PRADESH

1. RASHTRAKUTA INSCRIPTION, KANYATIRTHAM, DISTRICT CUDDAPAH.—This Kannada inscription, of about the ninth century, refers to the Rashtrakuta family and mentions Dantidurga.

2. COPPER-PLATE CHARTER, KAKINADA, DISTRICT EAST GODAVARI.—Dated in Saka 1113, this charter of the Kota chief Keta II registers the grant of the village Tellaparti on the bank of the Krishna. The seal bears the emblem of Gandabherunda.

3. INSCRIPTIONS, KOTIPALLI, DISTRICT EAST GODAVARI.—Of a dozen medieval inscriptions copied from the Somesvara temple at Kotipalli on the bank of the Godavari, two in Telugu respectively mention Katayavema Reddi and the Gajapati ruler Kapilesvara.

4. COPPER-PLATE CHARTERS, RAJAHMUNDRY, DISTRICT EAST GODAVARI.—The following copper-plates were examined through the courtesy of Shri R. Subba Rao, Secretary, Andhra Historical Research Society. A charter of the Eastern Chalukya ruler Bhima III (A. D. 934-45) registers the grant of the village Varanavendi in Sakata-*manthani-vishaya* to the Haihaya chief Chandana, son of Nannaka and Aytakamba and the grandson of Poleyana-raja, for his martial help. Of the three grants of the Reddi rulers, one registers the grant of the village Anaparti to Singaya and Vemgala of Vai-*khanasa-kula,* priests of the god Gopinatha at Rajamahendravaram, by prince Anavota, son of Kumaragiri Reddi, in Saka 1312, at the instance of Katayavema Reddi. The second charter, dated in Saka 1317, records the grant of the village Gopavaram for worship and offerings to the god Gopinatha by Katayavema Reddi. The third, dated in Saka 1320, registers the grant of the village Komaragirivaram, named after Kumaragiri Reddi and situated in Korukonda-sima, to a Brahmana named Aubhalarya of Kasyapa-*gotra* and Vaikhanasa-*kula* by the same ruler.

5. SATAVAHANA INSCRIPTION, NAGARJUNAKONDA, DISTRICT GUNTUR.—A pillar-inscription of Gautamiputra Vijaya Satakarni, dated in his sixth regnal year, was discovered. This happens to be the only Satavahana record from Nagarjunakonda as also the only-known inscription of this ruler, who is otherwise known from the Puranas and coins.

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[1] Information from : 5, the Assistant Superintendent, Nagarjunakonda Excavation Project, and 22, the Superintendent, Frontier Circle, of the Survey; 13 (first part), the Director of Archaeology, Andhra Pradesh State; 21, the Archaeologist, Government of Gujarat; 24 and 25, Professor K.D. Bajpai, University of Saugor; 42-46, the Director of Archives and Historical Monuments, Maharashtra State; 62, the Superintendent of Archaeology and Museums, Orissa State; 67, Shri K.P. Nautiyal, Deccan College Post-graduate and Research Institute, Poona; 68, Professor G. R. Sharma, University of Allahabad (also from the Government Epigraphist for India); and rest, the Government Epigraphist for India.

6. COPPER-PLATE CHARTERS, HYDERABAD.—The following copper-plates were examined through the courtesy of the Director of Archaeology, Andhra Pradesh. A fifth-century Pallava charter in Sanskrit from Jalalapuram, District Guntur, dated in the nineteenth year of the reign of Simhavarman, son of Skandavarman and grandson of Viravarman, records the gift of the village Vesanta in Dattapati to Jyeshthasarman of *Gautama-gotra. Rahasyadhikrita Kulippotta*, the *ajnapti* of the charter, wrote **the** record. An Eastern Ganga Sanskrit charter from Danta, District Srikakulam, contains two records, one dated Saka 982 and the other Saka 1007. The first registers the grant of the village Hantava together with Harivataka by Vajrahasta (III) (A.D. 1038-70) to his grandson Kamarnava for his martial valour, while the second records the gift of the same two places together with a third one called Billakada by Anantavarman Chodaganga (A.D. 1078-1146). The recipients of the latter gift were Chintaniyu-Kamarnava and Ka [li]-Kamarnava, who were the sons of Kamarnava, the donee of the first charter.

A copper-plate of Ellanadeva registers the grant of the village Alapadu to several Brahmanas by the chief named Ellanadeva in Saka 1186 for the merit of his wife, who is stated to be the second daughter of the Kakatiya queen Rudrambadevi.

A charter of Chalukya Vishnuvardhana, in faulty Sanskrit, registers the grant of the village *Ikshu-grama* to the Brahmana Narayanasarman of *Harita-gotra*, by the Later Chalukya king, Vishnuvardhana, who claims to be ruling from Rajamahendravara, while he was camping at Ikshupur, in the Kali year quoted by [the chronogram *ashta-netra-rasa-dosh*, corresponding to the cyclic year Prabhava.

A Sanskrit charter of Choda Mallideva registers the grant of the village Annaparti along with fifteen *puttis* of land in village Nandikumta by king Mallideva of the Kari-kalachoda family and thirtyfive *puttis* of land by a dancing girl named Tippasani to the god Agastyesvara of Ikshupura in the Saka year 1259.

Engraved in late Telugu characters, a charter of Anavema records the grant of the village Ikshupuri by Anavema, the Reddi ruler of Kondavidu, in Saka 1293.

7. COPPER-PLATE CHARTERS OF SADASIVARAYA, STATE MUSEUM, HYDERABAD.—Two charters, dated Saka 1474 and 1476, register grant of villages Jaduvalli and Rellundi respectively to Somanathabhatta and Venkatadri by king Sadasivaraya.

8. COPPER-PLATE CHARTER OF VIKRAMADITYA VI, STATE MUSEUM, HYDERABAD.—Dated in Chalukya-Vikrama 7 (A. D. 1082), the record registers a grant of the village Kannasamvi in Karadakal-300 of Ededore-desa to the god Bhattesvara of Nanda-*vatika-grama* by king Vikramaditya (IV) at the request of *dandanayaka* Bhattadevayya. The record was written at the instance of *mahapradhana dandanayaka* Kalimayya.

9. HERO-STONE, STATE MUSEUM, HYDERABAD.—This fourteenth-century Telugu record states that Prole offered his head to the Devi after saluting Oderaju. The sculpture depicts a man severing his head.

10. KANNADA INSCRIPTIONS, GANGAPURAM, DISTRICT MAHABUBNAGAR.—Of the inscriptions of the Chalukyas of Kalyana, an undated record of about the eleventh century, belonging to Trailokyamalla, probably Somesvara I, states that Vavanayya, the brother-in-law of *mahapradhana dandanayaka* Bhimanayya, made a gift of lands to the god Bhimesvara and had a tank and garden laid out for the temple. This tank is referred to as *Bhima-samudra* in another record of Vikramaditya VI, dated in the twentysecond year of his reign (A.D. 1097-98). Another record of the king dated in the sixteenth year of his reign (A.D. 1091) registers a gift of land as *jyotirvritti* to Aditya-bhattopadhyaya and Viddanabhatta, two astronomers of Trailokyamalla-Sri-Kesava-pura. In a record of Bhulokamalla dated in his regnal year 9 (A.D. 1134), Jayanandabhatta

is mentioned as a general *(dandanayaka)* of Teilapadeva, probably the younger brother of the king. Yet another damaged record, in characters of about the twelfth century, refers to the construction of a *jina-griha* and the consecration therein of the image of Chenna-Parsvanatha, for whose worship *mahavadda-vyavahari* Manikara Kalisetti made a gift of income from certain specified levies.

11. INSCRIPTION OF UDAYANACHODA-MAHARAJA, JEDCHERLA DISTRICT MAHBUBNAGAR.—This Telugu record, dated in Chalukya-Vlkrama year (actually Saka year) 1084, registers a gift of five *Gokanasimga-rukas* for two perpetual lamps and *gosagi-nivedya* in the temple of Svayambhu Somanatha of Koduru by the *dandanayakas* Nallasiddha and Errasiddha, who figure as the *sumkadhikarins* of the king.

12. TELUGU INSCRIPTIONS, KALVAKLANU, DISTRICT MAHBUBNAGAR.—Three records of the time of Kakatiya Prataparudra I (A.D. 1291-1323) mention the chiefs *mahasamanta* Ganapatideva, Immadi Devaya and Prolaya Reddi, son of *mahasamanta-Jagaddala* Immadi Devaraya, all of the Cheraku family.

13. VIJAYANAGARA AND OTHER INSCRIPTIONS, PANGAL, DISTRICT MAHBUBNAGAR.—Dated in Saka 1319 during the rule of Harihara II, a Telugu inscription in Sanskrit verse records the capture of the hill-fortress of Panugallu from the Muslims by Immadi-Bukka, younger brother of Irugapadandadhinatha and son of Baicha-dandadhipa and also refers to the renovation of the fortress and embellishment of the city.

Dated in Saka 1346 during the rule of Devaraya n, another epigraph records the construction of the temple of Mukti-Ramesvara by Devanarayana, belonging to a Brahmana family from Kasmira, who was the governor of the fort and who claims to have destroyed the army of Firuz Shah.

A Telugu inscription, dated Saka 1540, records the construction of a watch-tower at the fortress (Balakhilla) and a well in the potters' street inside the fortress by Khairat Khan, an officer of the king.

14. KANNADA INSCRIPTIONS, KOHIR, DISTRICT MEDAK.—A record, dated Saka 991, provides the latest date for Pampa-permanadi, who figures as a feudatory of Bhuvanaikamalla (Somesvara II). His wife Jakkaladevi is mentioned in another inscription from Velturu. A fragmentary record from Arur refers to the camp *(bidu)* of Sindinir, which may be identified with Sinnar, an early capital of the Yadavas.

15. CHALUKYA INSCRIPTIONS, KOLANUPAKA, DISTRICT NALGONDA.—These records in Kannada range in data from Saka 954 (A.D. 1032) to the Chalukya-Vikrama year 50 (A.D. 1126) and belong to the reigns of kings Jayasimha, Somesvara I and Vikramaditya VI. The earliest one, dated Saka 954, in the reign of Jagadekamalla (Jayasimha) refers to an endowment of the village Gadicheruvu included in Anemargge-70 by the king's *maneverggade* Nannapaya for offerings to the god Nanni-Narayana. Of the inscriptions of Somesvara, the earliest, dated Saka 968, records a remission of taxes by Kommanayyarasa, who ruled over KolIipake-7000 division ; the next, dated Saka 969, records a gift of income on the levy on salt *(lavanaya)* for the upkeep of a tank by the 'six *settis'* and 'one hundred and twenty' *nagaras*, obviously of Kollipake; and the third dated Saka 973 (A.D. 1051) refers to the king as ruling from Payithana. Two more epigraphs of this king, dated Saka 986 and 989, mention respectively his feudatories Buddha-varasa and Koteya Bhimarasa, of whom the latter, bearing the epithet *Manya-katakapuravaresvara*, is stated to have been the governor of Kollipake-7000. The remaining records belong to Tribhuvanamalla Vikramaditya VI. Three of them, dated respectively in his twelfth, thirteenth and sixteenth regnal years (A.D. 1088, 1089 and

1092) mention the king's feudatory Tondayachola-maharala. One mentions Rame-svara-Pandita as a pontiff of the Kalamukha sect, who received for the Uttaresvara temple an endowment of money collected from officials and shops. Prince Somesvara figures in one of the records as performing the following *mahadanas: gudaparvata, sarkaraparvata, lavanaparvata* and *gosahasra* on the occasion of Akshaya-tritiya, and in another as endowing a village to the temple of Ambikadevi of Ambaratirtha.

Two Sanskrit epigraphs, one in Nagari and the other in Kannada, the former on wall of the *mandapa* and the latter on the wall of the shrine of the Vira-Narayana temple, both dated in the Chalukya-Vikrama year 29 (A.D.1104), record endowments of lands and money by the Paramara prince *kumara mahamandalesvara* Jagaddeva, a feudatory of Tribhuvanamalla, to the god Jagaddeva-Narayana. The money endowmwment consisted of collection from the villages included in Kollipake-7000 Division at the rates of five, four and three gold coins (called *uttama-ganda-chihnas)* respectively from the villages classified as *uttama, madhyama* and *adhama.* The epigraphs vividly describe the Arbuda mountain and trace Jagaddeva's ancestry from Harsha.

16. KAKATIYA INSCRIPTIONS, KOLANUPAKA, DISTRICT NALGONDA.—An inscription of Kakatiya Ganapati, dated Saka 1142, records the consecration of various deities at Srisaila and its four cardinal gates, viz. Mantrakuta, Draksharama, Kollipaka and Kalesvara, the consecration of a *sahasra-linga* and endowments made to them. Another record, belonging to the rule of queen Rudramba (A.D. 1260-91), gives an account of a branch family of the Chalukyas and their relationship with the queen. It also mentions a canal dug at Kollipaka by a servant of this family.

17. MUGHAL INSCRIPTION, KOLANUPAKA, DISTRICT NALGONDA.—Dated Vikrama 1761, the inscription (pl. CXXXIII A) in Sanskrit records the installation of Manikya-svamin and the construction of a *chaitya-dvara* by Vijayaratna-Suri, disciple of Vijaya-prabha-Suri of the Tapa-gachchha, and *pandita* Kesarakusala, disciple of Dharma-kusala-Gani, with the help of Nawab Muhammad Yusuf Khan Bahadur, a *subedar* under the Mughal emperor Bahadur Shah.

18. INSCRIPTIONS, BODHAN, DISTRICT NIZAMABAD.—Of the five inscriptions copied here, four, discovered in the ruined fort-wall, reveal that a place referred to as Bhaudhanya-nagara was a Jaina centre in the eleventh-twelfth centuries. Three inscrip tions refer to the death, by *samadhi* or *sannyasana,* of the Jaina preceptors Subhanandi, Gandavimukta-bhattaraka and Chandraprabhacharya. The fifth, in Kannada, dated Saka 978, refers to the renovation of the Indra-Narayana temple, formerly built by Indravallabha of the Rashtrakuta family, consecration of the image of Vishnu therein, erection of a Garuda-pillar and gift of two villages, oil-mills, a flower-garden and the income from the toll on salt, for worship, by *perggade Jogapayya.*

19. TELUGU INSCRIPTIONS, GUDILOVA, DISTRICT VISAKHAPATNAM.—Four Telugu records mention Dantuluri Narayana Gajapati, son of Narayanaraju and Buchhi Vemkamamba of Dhananjaya-*gotra*, and refer to the gift of a garden and installation of a *linga.*

20. COPPER-PLATE CHARTERS, WALTAIR, DISTRICT VISAKHAPATNAM.—A Kakatiya charter on seven large plates records, in Sanskrit verse, the grant of the village Uttaresvara to Viddanacharya, a Brahmana of Kapi-gotra, by the Kakatiya prince prataparudra in Saka 1211, while queen Rudramba was ruling. A Vijayanagara charter on five plates, engraved in Nandi-nagari, registers the gift of the village Nagavaram in Chandra-*giri-rajya* to several Brahmanas versed in different *sastras* by the Vijayanagara king Achyutaraya in Saka 1456.

GUJARAT

21. KASHATRAPA INSCRIPTION, MANDAVI, DISTRICT KUTCH.—A new Kshatrapa inscription of the time of Rudrasimha was discovered.

JAMMU AND KASHMIR

22. SHELL-INSCRIPTION, AKHNUR, DISTRICT JAMMU.—Two inscriptions in so-called shell characters (pl. CXXXIV) on rough unhewn rubble stones were found in the compound of the Kamesvara temple at Akhnur.

KERALA

23. INSCRIPTION, PERUMPALUDUR, DISTRICT TRIVANDRUM.—Dated in the tenth regnal year of Karunandadakkan, the Ay chief, this inscription in Vatteluttu characters of the tenth century, engraved on a *bali-pitha* lying amongst the ruins of a Vishnu temple, records the provision made for offerings on the *bali-pitha* for the god at Tirunarayanam.

MADHYA PRADESH

24. INSCRIPTIONS, DISTRICT NIMAR EAST.—Three inscriptions on the pedestals of images, dated Vikrama 1189 (A.D. 1132), were discovered.

25. BRAHMI INSCRIPTIONS, BHARHUT, DISTRICT SATNA.—Three votive inscriptions of the Sunga period bearing the names of donors hailing from Moragiri, Karahakata, and Vidisa, were found.

MADRAS

26. TAMIL INSCRIPTION, ARSANKALANI, DISTRICT CHINGLEPUT.—A sixteenth-century Tamil inscription on stone records a grant of land to Chittirameli-pperumballi, apparently a Jaina establishment, and contains on its reverse the carvings of a plough, the sun and the moon, a drum and a *purna-kumbha.*

27. TAMIL INSCRIPTIONS, MADAMBAKKAM, DISTRICT CHINGLEPUT.—Two Tamil inscriptions engraved on a stone in characters of about the eleventh century record the provision made for food-offering to the deity Sirreri-mahadeva by Rajaraja-Jayadratha and to the deity Uma-Skandasahitar and his consort.

28. CHOLA INSCRIPTION, SIVAPURAM, DISTRICT CHINGLEPUT.—A Tamil inscription engraved on the wall of the Siva temple is dated in the twentyseventh regnal year (A.D. 1044-45) of Rajadhiraja I and records the provisions made for various services rendered by *manigal patiyar,* musicians playing on *vina* and *udukkai* in the temple of Sri-Rajarajesvaram.

29. TAMIL INSCRIPTION IN BRAHMI, ARACHCHALUR, DISTRICT COIMBATORE.—Engraved in the Brahmi script of about the third century A.D. on the bed of a natural cavern in the Nagamalai hill, the inscription (pi. CXXXIII B) reads in two lines : *Eluttup-punar(n)ttanma[liai]y vannakkan-[Teva]n [Cha]ttan.* A chart of some vocalic forms of the letters *ta* and *ka* such as *ta*, *ti*, *te*, *tai* and *kai* is engraved on either side of the above inscription which seems to state that Tevan-Chattan composed the charts, which probably represent notations for dance.

30. INSCRIPTION, PERUR, DISTRICT COIMBATORE.—Dated in the second regnal year of the Kongu-Chola king Vikrama Chola, this thirteenth-century Tamil inscription records

a provision for food-offerings to the god Idangainayaka-isvaramudaiyar by some army officers.

31. TAMIL INSCRIPTIONS, ONNIVADI, DISTRICT COIMBATORE.—The inscriptions (pl. CXXXIII C) belong to the time of Kandan Iravi of the Chandraditya-kula One of them, engraved on a stone balustrade in a Siva temple in Vatteluttu characters of about the ninth century, refers to the construction of the temple by a servant of the king. The other, in Tamil characters engraved on a rock, records a gift of land for worship in the Siva temple by another servant of the same king.

32. CHOLA-PANDYA INSCRIPTIONS, ANAIYUR, DISTRICT MADURAI.—Three Tamil inscriptions, engraved on the *maha-mandapa* pillars of the Siva temple and dated respec tively in the fifth, ninth and thirteenth regnal years of Jatavarman Sundara-Chola-Pandya, record gifts of sheep for maintaining lamps and state that the sheep were entrusted to the heads of regiments *(padaittalaivar).*

33. INSCRIPTIONS OF VIRAPANDYA, ANAIYUR, DISTRICT MADURAI.—Dated in the tenth year of the reign of *Solntalaikonda* Virapandya, two inscriptions, in Vatteluttu characters of the tenth century, record gifts of money by Sattan Tamilan for perpetual lamps to the god at Tirukkurumullur, while another in Tamil characters refers to his camp at Mangalyapuram and to a deity who was pleased to give the kingdom to him.

34. PANDYA INSCRIPTION, MADURAI.—A Tamil inscription in Vatteluttu characters of the seventh century, unearthed from the bed of the Vaigai, is dated in the fiftieth regnal year of king Sendan and records the construction of a sluice named *Arikesariyan* and a channel. This is the second earliest Pandya inscription known so far (1959-60, p. 58).

35. SANSKRIT INSCRIPTION, TIRALI, DISTRICT MADURAI.—This thirteenth century inscription, in Grantha script and Sanskrit language, appears to refer to the conquest of the Cholas by one Sundarapandya who was probably Maravaraman Sundarapandya I himself.

36. TAMIL INSCRIPTIONS, CHIDAMBARAM, DISTRICT SOUTH ARCOT.—Two Tamil inscriptions, probably of the time of Jatavaraman Sundarapandaya I *(circa* A.D. 1251-70), engraved in the Nataraja temple, record grant of land for maintaining a library established by Svamideva at the temple. The library is stated to contain manuscripts in Tamil and Grantha scripts including that of *Siddhantaratnakara.* One of the inscriptions gives a list of scholars versed in *Purana,* astronomy, etc., employed in the library.

37. PANDYA INSCRIPTION, KANNAKKUR, DISTRICT THANJAVUR.—Dated in the fifteenth regnal year of Jatavarman Virapandya, this Tamil inscription, engraved on the wall of the Ganesa temple, records a gift of land to a deity known as Akkaisalai-pillaiyar by the residents of Poduvakkudi.

38. CHOLA INSCRIPTIONS, PERUMBULIYUR, DISTRICT THANJAVUR.—TWO inscriptions in the Vyaghrapurisvara temple, one dated in the twentyfirst year of Rajendra I (A.D. 1012-44) and the other of his son Rajadhiraja I (A.D. 1018-54), refer to Panchavan-Mahadevi, the queen of Rajendra. The former records a gift of gold to the god Mahadeva by the maternal uncle *(mamanar)* of the queen and the latter some provision for jewels to the goddess by her sister.

39. CHOLA INSCRIPTION, SRIRANGAM, DISTRICT TIRUCHCHIRAPALLI.—Dated in the thirtyninth year (A.D. 945-46) of Parantaka I, this Tamil inscription, engraved on a pilaster of the *chandana-mandapa,* i.e. the first *prakara* enclosing the *garbha-griha* of Sri-Ranganathasvami, records a gift of land for food-offerings to the god by Acchiyan Bhattan Sri Vasudevan, a *brahmadhiraja* of *Vila-nadu.*

40. CHOLA INSCRIPTION, UYYAKKONDAN-TIRUMALAI, DISTRICT TIRUCHCHIRAPALLI.—This Tamil inscription, dated in the third regnal year (A.D. 1015) of Rajendra I, records grant of tax-free land to the reciters of *tiruppadiyam* in the temple of Vilumiyadevar in Karkudi by the king while he was taking food in his palace at Palaiyaru, at the instance of Senapati Raman Rajarajan *alias* Rajaraja-Brahmarayan.

MAHARASHTRA

41. COPPER-PLATE INSCRIPTION, AURANGABAD.—Dated Saka 836, this Sanskrit charter belongs to the reign of Rashtrakuta Indra III and registers the gift of the village Khairondi near Paitthana by the king on the occasion of his coronation-ceremony. The donee was Damodarabhatta who had migrated from *Vengi-vishaya*.

42. LAMP-INSCRIPTIONS, TALEVADA, DISTRICT BIR.—TWO *dipa-malas* in front of a temple of Bhavani bear inscriptions dated Saka 1701 and 1704, furnishing the date of its construction and the name of the donor.

43. RASHTRAKUTA CHARTER, SINNAR, DISTRICT NASIK.—A charter on three copper plates, dated Saka 701, records the gift of Brihat-Pushkarika village in Pratishthana Division to Vardhana, a Brahmana of Kausika-gotra by Durgahasti of the Sendra family, a vassal of the Rashtrakuta Dhruva. The charter was drafted by Baladeva, minister for peace and war of the queen Silamahadevi, wife of king Dhruva.

44. TEMPLE-INSCRIPTION, GANGAKHEDA, DISTRICT PARBHANI.—An inscription in the temple of Maharudra, locally called Jod-Deul, records its construction in Saka 1510.

45. COPPER-PLATE GRANTS, POONA.—Two charters were examined through the courtesy of Shri G.H. Khare of the Bharat Itihas Samshodhak Mandal, Poona. Dated Saka 888, one of the charters belongs to the reign of Arikesarin III of the Chalukya family of Vemulavada, who is stated to have been the feudatory of Rashtrakuta Akala-yarsha (Krishna III) and to have made to the gift of the village Vanikadupulu situated in the Repaka group of twelve villages in Sabbi-1000.

Dated Saka 1020 (A.D. 1098), the other charter registers the gift of the village Komkane situated in Samgamanera-84 by the early Yadava ruler *Mahamandalesvara* Airamadeva, who was the feudatory of Western Chalukya Vikramaditya VI.

46. INSCRIPTIONS, DHARMAPURI, DISTRICT SHOLAPUR.—Of five Kannada inscrip tions found, one is of Western Chalukya Jagadekamalla II which records a grant of land to the god Kalesvara by Demarasa and mentions 500 *svamins* of *mahagrahara* Lokkigundi. The second one mentions Yapaniya-sangha. The third records a grant of income from different taxes for the worship of a deity and for the feeding of the ascetics by Pancha-pattana, the grant being entrusted to Mahavirapandita of Yapaniya-sangha. The fourth records some grant, while the fifth one engraved on the Kedaresvara temple praises one Vikramanka.

MYSORE

47. RATTA INSCRIPTION, KABBUR, DISTRICT BELGAUM.—This Kannada inscription, dated Saka 1126, in the rule of Kartaviryadevarasa, the Ratta chief of Saundatti, ruling from Velugrama, modern Belgaum, records a gift of money-income derived from the sale of horses to god Kalidevasvami of the *piriyagrahara* Kabbur.

48. INSCRIPTION, KHADAKALAT, DISTRICT BELGAUM.—Dated A.D. 1174, it records a gift of income from levies on several articles, for the repairs and maintenance of the

fort with the moat at *agrahara* Latti by the five-hundred *svamins* of Ayyavale and other mercantile guilds.

49. SILAHARA COPPER-PLATES, PATTANAKUDI, DISTRICT BELGAUM.—Dated Saka 910, this Sanskrit charter belonging to the Silahara king Avasara II records a gift of money by three *settis*. This is the second known record of the family, the first being the Kharepatan plates of Rattaraja, son of Avasara II.

50. KANNADA INSCRIPTION, MANGALGI, DISTRICT GULBARGA.—Dated Saka 1253 (A.D. 1331), this Kannada inscription recording the gift of a tax-free shop *(angadi)* to one Heggade Madi-setti, belongs to the reign of Suratana Mahammada Sahi (Sultan Muhammad Shah Tughlaq).

51. WESTERN CHALUKYA AND KALACHURYA INSCRIPTIONS, SYED-CHINCHOLI, DISTRICT GULBARGA.—Engraved on the same slab, these two inscriptions, one issued in the forty-sixth regnal year (A.D. 1122) of the Chalukya Vikramaditya VI and the other in the seventh year (A.D. 1173) of the Kalachurya Rayamurari Bhujabalamalladeva, are of interest in that they refer to the existence of a *purana-khandika* (college for Puranic studies), provided for in these grants.

52. MISCELLANEOUS INSCRIPTIONS, DISTRICT GULBARGA.—Four inscriptions, two from Chitapur Taluk and the other from Gulbarga Taluk, refer to the territory called Gomkanurippattaruvattu (i.e. Gomka 120+60 division) within *Sarvadige-kampana,* a sub-division of Alande-1000, also called *Alande-vishaya.* Gomkarasa I, Virakalarasa and Gomkideva or Gomkarasa II, members of a family of local chieftains, noticed previously (1960-61, p. 47), also figure in some inscriptions now copied.

53. WESTERN CHALUKYA INSCRIPTION, BAGALWAD, DISTRICT RAICHUR.—An inscription of Vikramaditya VI introduces *Mahamandalesvara* Ayyanadeva of the Haihaya family.

54. WESTERN CHALUKYA INSCRIPTION, BALLATGI, DISTRICT RAICHUR.—Three inscriptions of Jagadekamalla Jayasimha II introduce his hitherto-unknown queens Mahadevi, Chamaladevi and Somaladevi. Another inscription refers to the second year of the reign of Chalukya-Vikrama-chakravarti Rakkasaganga, corresponding to A.D. 1151, when Taila III was ruling, indicating Rakkasaganga as an epithet of this king. The inscription introduces another chief of the Haihaya family, viz. Ghattidevarsa, who was also a feudatory under Taila's predecessor, Jagadekamalla II.

55. RASHTRAKUTA INSCRIPTION, BHOGAVATI, DISTRICT RAICHUR.—The inscription, belonging to the reign of Kannaradeva, states that Jagattungadeva was governing the division of Edadore-2000. It is dated in the cyclic year Virodhikrit, on the strength of which Kannaradeva can be identified with Krishna II (A.D. 880-914). Jagattungadeva predeceased his father, Krishna II.

56. VIJAYANAGARA INSCRIPTION, CHIKALPARAVI, DISTRICT RAICHUR.—A long inscription of Krishnadevaraya refers to the king's conquests of the forts of Rachuru, Alampuru, Manuva, Hanumgal and Magade and records a grant of the village Chikalaparavi to Tiruvengalanatha by the king who was on a visit to Kudalur at the confluence of the rivers Krishna and Bhimarathi when he, along with his queens Chinnadevi and Tirumaladevi, performed the *ratnadhenu, gosahasra* and *kanakasva mahadanas.*

57. HAIHAYA INSCRIPTION, HIRA, DISTRICT RAICHUR.—The inscription refers to *Mahamandalesvara* Allahulideva as the donor of a land-grant to the temple of Lakshmi-narayana built by Sarvadeva-setti at Balagaranuru. This chief is known to have belonged

to the Haihaya family from an inscription at Balaganur in Sindhanur Taluk of the same District.

58. CHALUKYA INSCRIPTIONS, KALLUR, DISTRICT RAICHUR.—An inscription of Vikramaditya VI, dated in the Chalukya-Vikrama year 20 (A.D. 1096), states that the king, while camping on the bank of the Narmada in the course of his northern campaign, granted the village Kallur to Vikramaditya-bhattaopadhyaya, on the occasion of the *pancha-langala-kratu* performed by him. This inscription also introduces the Haihaya chief Chandarasa.

Another inscription quotes an earlier date, i.e. the first regnal year for Chalukya-chakravarti Rakkasaganga (i.e. Taila III), already referred to in a record from Ballatgi above (no. 54). This inscription refers to Buchidevarasa of the Haihaya family. The latter also figures in three other records from the same place, of Vikramaditya VI, Jagadeka-malla II and Somesvara III.

A third inscription, belonging to the sixteenth century, lays down certain rules to be followed by the residents of Kallur on the treatment of cattle on festive occasions like Kara-Hunnave, Dipavali-Amavasya, etc., and also on the method of disposing of the dead cattle.

59. WESTERN CHALUKYA INSCRIPTIONS, KAPGAL, DISTRICT RAICHUR.—The inscription, belonging to the reign of Somesvara II (A.D. 1068-76), introduces his queen Pampadevi, daughter of Chamaladevi, and records a grant of land made by her to god Bhogesvara at Bhatta-grama Kappakallu while camping at Kereyuru.

60. WESTERN CHALUKYA INSCRIPTIONS, KURADI, DISTRICT RAICHUR.—Two inscriptions, one belonging to the rule of Vikramaditya VI, dated in Chalukya-Vikrama year 47 (A.D. 1122), and the other of Somesvara III, dated in his regnal year 12 (A.D. 1137), refer to *Mahamandalesvara Kumara* Tailapadeva, identifiable as the son of Vikramaditya VI. The latter inscription provides the latest known date for this prince.

61. ALUPA INSCRIPTION, HOSAKOTE, DISTRICT SOUTH KANARA.—This inscription, dated Saka 1247, belongs to the reign of the Alupa king Pandya-Chakravartti Vira Soyideva (A.D. 1315-35).

ORISSA

62. COPPER-PLATES, PARLAKIMIDI, DISTRICT GANJAM.—Of two copper-plates, one is the last part of a grant issued by a king of the Mathara dynasty, while the other, engraved in the Oriya script, was issued by the Gajapati Naravanadeva of Parlakimidi in A.D. 1772.

RAJASTHAN

63. JAINA INSCRIPTION, GARH, DISTRICT ALWAR.—Dated Vikrama 979 (A.D. 923), the inscription belongs to the reign of a king named Savata and records the construction of the temple as well as the installation of the image of Santinatha therein at Rajyapura by the Jaina architect Sarvadeva, son of Deddullaka and grandson of Arbhata of the Dharkata family hailing from Purnatallaka. The inscription is now in the Delhi office of the Superintendent, Archaeological Survey of India, North-western Circle.

64. CHAULUKYA INSCRIPTION, ACHALGARH, DISTRICT SIROHI.—This record of the reign of Chaulukya Bhima II gives a genealogical account of the Chaulukyas of Gujarat, the Paramaras of Chandravati and the Chaulukya Vaghelas, followed by an account of

the family of Vastupala and Tejahpala who are credited with some constructions on the Arbuda mountain.

A stray stone inscription from the same place, in late characters, records the death of a *nagara-nayika* and her lover and the construction of a *chautra* (platform) for them by Champa.

65. MISCELLANEOUS INSCRIPTIONS, BARLUT AND SINDRATH, DISTRICT SIROHI.—Dated *samvat* 1667 (A.D. 1610), an inscription from Barlut records an order of the Devada-Chahamana ruler Surtana to observe the *agata* rite on a particular day. Two inscriptions from Sindrath, dated *samvat* 1736 and 1745, also refer to the *agata* rite to be observed by all castes and communities. Dated in *samvat* 1775, a third inscription, also from Sindrath, records the gift of an *arahata* to the villagers by the Devada Chahamana ruler Umedasimgha.

66. INSCRIPTION, NIWAI, DISTRICT TONK.—Dated *samvat* 1704 (A.D. 1647), the inscription records the construction of the door of the temple of Kamkalidevi by Maharaja Samgramasingha.

UTTAR PRADESH

67. MISCELLANEOUS INSCRIPTIONS, DISTRICT GARHWAL.—At Kalimath a *prasasti* of *circa* eighth century, which refers to one Rudrasunu 'who had attained the highest merits in this childhood' was discovered. Also were discovered two Tibetan inscriptions and an inscription in the Gupta and Tibetan scripts of *circa* seventh century at Mana near Badrinath.

68. EDICT OF ASOKA, AHRAURA, DISTRICT MIRZAPUR.—The text of this Edict (pl. CXXXV) closely follows that of the Sasaram Minor Rock-edict but the last line here reads : *duve sampamna lati-sati ammam cha Budhasa salile alohe* [200] 50 6.

69. PILGRIM-RECORDS, BHUILI, DISTRICT MIRZAPUR.—About fifty pilgrim-records engraved on the rocks of the hill, in characters of the seventh-eighth centuries, mention the names of individuals such as *sutra-dhara* Pavalochana, *peta-pati* Vishnu, Gabhasti Isadeva, Bhadravidhiratna, Silakuta Pradyumna, Silakuta-naga, Silakuta-mahanaga, Yasa-naga, Deva-naga, Sindhu-Chandhu *bhikshuni*, Patuprahasi, *kayastha* Ravishena, *rajan* Ranakalaha, Ratimula-Pratimuli, etc.

ARABIC AND PERSIAN INSCRIPTIONS[1]

BIHAR

1. INSCRIPTION OF GHIYATHU'D-DIN MAHMUD SHAH OF BENGAL, PURNEA.—A new inscription of the Bengal Sultan Ghiyathu'd-Din Mahmud Shah was found at Purnea. It records the construction of tomb in A.H. 943 (A.D. 1537) by one Balyan (?) Shah. The impression was supplied by the K.P. Jayaswal Research Institute, Patna.

GUJARAT

2. INSCRIPTIONS OF THE MUGHALS, DISTRICTS BARODA AND MEHSANA.—An inscription of Akbar, lying loose in the mosque attached to the tomb of Maulana Ya'qub at

[1]Information from : 20, Shri N. M. Ganam of the Western Circle of the Survey; rest, the Superintendent for Arabic and Persian Inscriptions of the Survey.

Patan, District Mehsana, states that a mosque and a grave were constructed, for Dust Muhammad Sultan in A.H. 982 (A.D. 1574).

Another record, found on the bank of a lake at Dabhoi, District Baroda, belongs to the reign of Shah Jahan and constitutes the text of a *qualnama* issued in A.H. 1054 (A.D. 1644) by Qazzaq Khan, the *jagirdar* of the *parganas* Barodara, Dabhoi, Sinor and of *sarkar* Nadot. It contains instructions to officials regarding the cultivation of land and mitigation of the difficulties of the public.

3. INSCRIPTIONS OF THE RAOS OF KUTCH, BHUJ, DISTRICT KUTCH.—Of the three records of the Raos of Kutch, one from a mosque states that during the government of Rai Desar (Deshal), one Namuhri of the Kor-i-Jah (Korija) clan constructed the mosque in A.H. 1162 (A.D. 1749); it also mentions the Mughal emperor Ahamd Shah as the over lord. The second, from a tomb, locally called Gumbad of Baba Guru, mentions the cons truction of the tomb by Khairi Habashi in A.H. 1183 (A.D. 1769-70), during the reign of Rao Guhar (Gohad), son of Rao Lakhpat. The third appears on the tomb of Dadu Miyan, a saint whose tomb is said to have been constructed in A.H. 1180 (A.D. 1766-67), during the reign of Rao Guhar (Gohad) Sing. But the inscription was set up later in the first year of the reign of Gohad's successor Rao Raydhana.

4. MISCELLANEOUS INSCRIPTIONS, DISTRICT KUTCH.—Among the miscellaneous inscriptions, the most important ones are from Bhadreswar. Totalling eight in all, they are not only interesting for the flowery *Kufi* script but are important historically as at least three of them, all epitaphs, bear the dates A.H. 554 (A.D. 1159) (pl. CXXXVI A), A.H. 569 (A.D. 1174) and A.H. 573 (A.D. 1177), which cover the reigns of Kumarapala, Ajayapala and Mularaja of the Chaulakya dynasty. Thus they belong to a period prior to a the establishment of Muslim rule in Gujarat. Of the remaining five, three contain religious texts and two are epitaphs dated A.H. 605 (A.D. 1209) and A.H. 620 (A.D. 1223) falling in the reign of Chaulukya Bhimadeva II.

An epitaph from the Da'udi Hazira at Mandvi gives A.H. 1132 (A.D. 1719-20) as the date of construction of the tomb of Maulana Nur Muhammad, a Bohra saint. The record is notable for being carved in the fashion of Gujarat epitaphs of the thirteenth-fourteenth centuries. A record on the 'Idgah at the same place mentions Dosal Ven, son of Bhojo, a powerful minister of his time. It is dated A.H. 1214 (A.D. 1799-1800).

An epitaph, from Bhuj records the date of death, viz. A.H. 1229 (A.D. 1814) of Fath Muhammad, a high state official.

MADHYA PRADESH

5. INSCRIPTIONS OF THE MUGHALS, DISTRICTS GUNA, NIMAR EAST AND SHIVPURI.—Of the two inscriptions of Jahangir, one is set up over the gate of the Akbari-Sarai at Burhanpur, District Nimar (pl. CXXXVI B) and records the construction of the *sarai* by Khan-i-Khanan, the governor, under the superintendence of Lashkar Khan in A.H. 1027 (A.D. 1618). Its calligraphy, by Khalaf a't-Tabrizi, is of a high order. The other inscription of Jahangir, from Shivpuri, is bilingual. Badly damaged and crudely executed, it forms the text of a royal order advising the *jagirdars*, *karoris* and agents *('ummals)* of the *pargana* Shivpuri of *sarkar* Narwar in *suba* Malwa that certain taxes were remitted.

Of the inscriptions of Shah Jahan, the earliest is from Randod assigning the construction of a mosque to Shaikh Muhammad in A.H. 1043 (A.D. 1633). Another, from the same place, records the erection of a mosque in A.H. 1050 (A.D. 1640) by Shaikh Nizam Shaibani. The third, from a mosque at Chanderi, District Guna, states that the mosque was constructed by Sher Muhammad Khan, son of Hamid Khan in A.H. 1061 (A.D. 1651).

Ten new inscriptions of Aurangzeb, some of them bilingual, were found. The earliest, from a well at Ranod, assigns its excavation to Shah Baig, son of Faulad Baig, son of Muhibb `Ali Baig in A.H. 1073 (A.D. 1663). Another from the same place states that a garden and a step-well were constructed in A.H. 1074 (A.D. 1663) for public use in the name of Sobha Chand, son of Sital Das Mahajan Agarwal; it mentions Mirza Ibrahim Husain and Rai Mansukh Karori as *the faujdar* and *amin* respectively and also few more officials—*chaudharis* and *qanungos.* Yet another epigraph from the same place, also pertaining to a well, mentions Mirza Shah Baig, probably identical with one referred to above, as the *faujdar* and *amin:* it is dated A.H. 1078 (A.D. 1668). The inscription from Hathpure-ki-Masjid at Chanderi, purporting to record the construction of a mosque and a garden with a well around in the thirtyfifth regnal year (A.H. 1102=A.D. 1691) by one Hasan, is an interesting record: its text is nothing but a plagiarized version of the inscription of the Malwa Sultans, appearing on the Basant-Badu-Masjid at Chanderi. Lastly, an inscription on a tomb at the same place states that Shaikh Raji Muhammad, son of Shaikh Nizam, resident of Mahoba and descendant of Shaikh Farid-i-Ganj-i-Shakar, constructed it over the remains of his wife.

6. INSCRIPTIONS OF THE SULTANS OF MALWA, DISTRICTS GUNA AND SHIVPURI.—A fragmentary and much-damaged inscription now fixed into the wall of the Jami'-Masjid, Chanderi, is a new record of Dilawar Khan Ghori, who is mentioned with the title Shamsu'd-Dunyawa'd-Din.

An epigraph of Hoshang Shah Ghori from the same place (pl. CXXXVI D) records that Malik Salar, the minister, constucted the tomb of saint Shaikh Burhanu'd-Din in A.H. 828 (A.D. 1424-25) during the *muqti'-ship* of Malik Nasiru'd-Din. It also gives A.H. 823 (A.D. 1420) as the date of demise of the saint.

A new inscription of Mahmud Shah Khalji I was found in a mosque at Ranod. It records the construction of the mosque in the *qasba* of Ranod by Malik Husain in A.H. 845 (A.D. 1441). The same monarch's inscription on the Jami'-Masjid at Shivpuri assigns the construction of the mosque to Muhammad Turkan and Ahmad Turkan, also in A.H. 845. The text of this inscription is a careless copy of the Tughluq inscription from Ranod referred to above.

At Chanderi was found another record of Mahmud Shah I Khalji. It records the construction of a step-well in A.H. 864 (A.D. 1459-60), during the *muqti'*-ship of Mahabat Khan Sultani.

Of the five records of Ghiyathu'd-Din Khalji found at Chanderi, the one from the Qadion-ki-Baori states that Qadi ibn-i-Mihran constructed the step-well in A.H. 890 (A.D. 1485), when Sher Khan was the *muqti*[1] of the place. It also gives the name of this official as 'Ali. The inscription of the 'Idgah assigns its construction in A.H. 900 (A.D. 1495) to the same *Masnad-i-Ali* Sher Khan. The two inscriptions on the Battisi-Baori record the fact that Malk Taghi, son of Fakhr, entitled Shariqu'i-Mulk constructed a step-well, a mosque and a garden; the construction commenced in A.H. 890 (A.D. 1485) and was completed three years later. The last record of Ghiyathu'd-Din was found at Piranpur, a village near Chanderi. It seems to record the construction of a step-well by one *majmu'dar* whose name is illegible.

Two inscriptions of Nasir Shah were found. Both pertain to Gol-Baori at Chanderi. According to these, the step-well was constructed in A.H. 909 (A.D. 1503-04) in the name of Alau'i-Haq by Sahah-i-Khair and Gul-i-Bihisht, the two *umm-walads of* the saint, who are further mentioned to have carried out many such works of public utility.

Another epigraph of the Malwa Sultans was discovered at Chanderi, but the record being badly damaged the king's name cannot be made out. It seems to record the

construction of a tomb, a garden around it and a school with a *langar* (free-kitchen) attached to it.

7. INSCRIPTION OF THE FARUQIS OF KHANDESH, ASIRGARH, DISTRICT NIMAR EAST.—A damaged inscription in plaster occurring on the 'Idgah at Asirgarh records its construction in A.H. 997 (A.D. 1588-89), during the time of Adil Shah IV.

8. MISCELLANEOUS INSCRIPTIONS, DISTRICT NIMAR EAST.—A new inscription was found engraved on the sides of a grave near 'Adil Shah's tomb at Burhanpur. Though badly damaged, it has been found to be an epitaph of Shuja'u'd-Din Yar 'Ali, a prominent Faruqi noble, who died in A.H. 909 (A.D. 1504). Another new record, built up into the wall of the tomb of Sufi Nur Shah, also at Burhanpur, furnishes some interesting information: composed by the builder Muhammad Shah, it states that his father Sadr Shah, son of Shah Imam Quli, son of Shah Sawar, having come to India from Bukhara, founded the villages Sadrpur and Shahpur in the *pargana* Shakarapur near Shahjahanabad (Delhi) and settled there; that he himself, a disciple of Shaikh Nur Muhammad Rid'ai who passed away in A.H. 1114 (A.D. 1702), constructed the tomb of the latter in A.H. 1118 (A.D. 1706-07).

9. INSCRIPTION OF MUHAMMAD BIN TUGHLUQ SHAH, DISTRICT SHIVPURI.—A new record of Sultan Muhammad, dated A.H. 732 (A.D. 1331-32), was found at Ranod. It refers to the construction of a mosque but the builder's name is lost.

10. INSCRIPTION OF THE LATER MUGHALS, RANOD, DISTRICT SHIVPURI.—This inscription, dated in the first regnal year of Mughal emperor Ahmad Shah, i.e. A.H. 1160 (A.D. 1747), is bilingual. The Persian version mentions the construction of a well and a garden and refers to Rai Parichchhit and Kirat, son of Girdharlal, the latter as *qanungo* of the *pargana* Ranod in *sarkar* Chanderi.

MADRAS

11. INSCRIPTION OF THE NAWWAB OF ARCOT, MADRAS.—In the Jami'-Masjid of Amiru'l-Umara Walajah at Madras were found two inscriptions which register in chronograms the date of its construction, viz. A.H. 1209-10 (A.D. 1794-95).

12. MISCELLANEOUS INSCRIPTIONS, MADRAS.—Of the epitaphs discovered in Madras, mention may be made of that of the great Indian savant Maulana 'Abdu'l-'Ali, Muhammad Bahru'1-Ulum of Lucknow who died at Madras in A.H. 1225 (A.D. 1810). Another records the date of demise of Wajihu'llah, son of Mujibu'llah, inhabitant of 'Azimabad (Patna), whose *non-de-plume* was Talib.

13. INSCRIPTIONS OF THE SULTANS OF MADURA, DISTRICT MADURA.—A fragmentary epigraph of Shamsud-'Din 'Adil Shah was found engraved on a loose slab now lying in the *dargah* of Sultan 'Alaud'-Din at Madura. It contains the incomplete text of a royal order whose exact purport is not clear. Another fragmentary tablet contains portion of a royal order demanding strict observance of the royal decrees.

MAHARASHTRA

14. EPITAPH OF MUBARAK KHAN FARUQI, THALNER, DISTRICT DHULIA.—This inscription fixed over the door of one of the tombs of the Faruqi kings at Thalner records the demise in A.H. 861 (A.D. 1457) of Mubarak Khan whose title is given as Mu'inu'd-Dunya wa'd-Din.

15. INSCRIPTIONS OF THE NIZAM SHAHIS OF AHMADNAGAR, DISTRICTS JALGAON AND NASIK.— Seven inscriptions of the Nizam Shahi kings of Ahmadnagar were brought to

light A bilingual record from the fort at Galna, District Nasik, simply contains the praise of the king and mentions Paulad Khan, an official. It is not dated but belongs evidently to the reign of Murtada Nizam Shah I. The next four, from Nimbait, District Nasik, are bilingual but hopelessly damaged. They are otherwise important records representing the direction-stones indicating the roads to Galna, Daulatabad, etc. and were set up in the reign of Burhan Nizam Shah. The sixth was found at the mosque in the Galna fort. It states that Malik Jamshid on his being appointed to the charge of the fort by Malik 'Ambar, the *wakil* of Burhan Nizam Shah, reconstructed the old mosque and the tank which were lying desolate. The last, now built up into the compound wall of a mosque at Shendurni, District Jalgaon, records the constuction of a bastion under orders from the king presumably by Hushyar Khan, son of Bazid Khan Sarwani Zai, the *shahan.* Its date A.H. 1034 (A.D. 1624-25) falls in the reign of Murtada Nizam Shah II.

16 MISCELLANEOUS INSCRIPTIONS, DISTRICTS JALGAON, KOLABA, NASIK AND POONA.— Quite a few interesting inscriptions pertaining to the construction of bastions, forts, etc., and mentioning officials were found. The earliest of these, from Rajpuri, District Kolaba, records A.H. 768 (A.D. 1266) as the date of the death of a child of Malik Mufarrah Sultani, the royal *dawidar* and later on governor of Gujarat. Three epigraphs from Galna, one of them bilingual, ranging in dates from A.H. 970 (A.D. 1562-63) to A.H. 978 (A.D. 1570-71) mention Aflatun Khan in connexion with the construction of the bastions, repairs to the fort-walls, excavation of a natural spring as a fountain, etc., at Galna. Another record from the same place assigns the construction in A.H. 987 (A.D. 1579) of a bastion and a mansion to Haibat Khan. A group of four records at the same place mentions Paulad Khan, referred to above, as having constructed a tomb outside the fort, bastions, fort-walls, etc. between A.H. 988 (A.D. 1580) and A.H. 991 (A.D. 1590). An inscription from the Wazir's tomb in the same town records that Mahaldar Khan constructed the tomb of Aqa Sulaiman who was killed by an enemy in A.H. 1013 (A.D. 1604-05). An inscription on the mosque at Shendurni records the renovation in A.H. 1071 (A.D. 1660) of an old mosque which was originally constructed by Bahadur Khan, the last Faruqi ruler who is mentioned there as the governor of *suba* Burhanpur Khandes. At Khed, District Poona, was found the epitaph of Raihan, son of Dilwar Khan, who died in A.H. 1022 (A.D. 1613-14). An inscription from Galna states that Lashkari Baig caused a stream to be brought and raised an annicut in A.H. 1083 (A.D. 1672-73). From Chakan, District Poona, were discovered two epigraphs, one recording the construction in A.H. 1093 (A.D. 1682) of a mosque during the time of Sayyid Janbaz Khan, the *qal 'adar* and the other mentioning the date of that official's death in A.H. 1095 (A.D. 1684). A group of ten epitaphs of the members of the family of Yaquat Khan Jamdar and Sidi Yaqut Khan and of Sidi Khairiyat Khan were found at Janjira and Khokri, District Kolaba. They bear dates between A.H. 1096 (A.D. 1685) and A.H. 1141 (A.D. 1728-29).

17. INSCRIPTION OF SIDI SURUR YAQUT KHAN, JANJIRA, DISTRICT KOLABA.—-Five inscriptions of Sidi Surur Yaqut Khan, the ruler of Janjira, were noticed at Janjira. One of them records the date of foundation of the two *hulmuk* bastions and strengthening of the fort of Jazira by Sidi Surur in A.H. 1111 (A.D. 1699-1700), while the second dated five years later records the date of completion. The third states that Yaquat Khan established himself in Kokan (Konkan) and consrtructed anew the strong fort of Jazira in A.H. 1140 (A.D. 1727-28); it further states that he had assumed independence in A.H. 1118 (A.D. 1706-07). The last record is badly damaged. It seems to record that the fort of Jazira was originally constructed by Fahim Khan during the time of Nizam

Shah of Dakan (1959-60, p. 63) and the bastion, the walls and the gates were again strengthened in A.H. 1142 (A.D. 1729-30) in the time of Yaqut Khan.

18. INSCRIPTIONS OF THE MUGHALS, DISTRICT NASIK.—Two epigraphs of the time of Aurangzeb were discovered in the Jami'-Masjid at Gondegaon. They state that Sayyid Majhle, son of Sayyid Haidar, *muqaddam* of the village Shahpur *'urf* Gondigaon situated in the *pargana* Wan, during his *faujdarship* of the *pargana* Chandor constructed in A.H. 1115 (A.D. 1703) in the course of twelve years the citadel *(gadhi),* the *haveli,* the gardens and the mosque with a well.

19. INSCRIPTIONS, RAJAPUR, DISTRICT NASIK.—Of the two inscriptions in the mosque at Rajapur, one provides A.H. 1008 (A.D. 1599) as the date of its construction, while the other, though, mutilated, also seems to refer to the mosque.

RAJASTHAN

20. INSCRIPTIONS OF THE MUGHALS, JAISALMER AND NAGAUR.—An inscription of the time of Akbar from the Faqiron-ka-Takiya at Jaisalmer states that when in A.H. 1008 (A.D. 1599-1600) the scribe Mir Buzurg's father, Mir Muhammad Ma'sum, was recalled from service at Qandahar, the latter camped at this place and constructed this building. Another record from the same place states that Mir Ma'sum halted here in A.H. 1010 (A.D. 1601-02) at the request of the Rawal (Bhimsingh) with whom he was intimate. According to another epigraph, inscribed by the same Mir Buzurg, Mir Masum left Jaisalmer from Bhakkar en route to Iran. Two inscriptions from the Government Secondary School at the same place furnish the information that Mir Ma'sum constructed this stone-building for public use in A.H. 1014 (A.D. 1605-06). It is interesting to note that the title Aminu'1-Mulk is used for the noble-man in this epigraph.

Two inscriptions of Aurangzeb's reign were engraved on the pillar of the same building by Muhammad Fathi, son of Mirza 'Isa Tarkhan and his servant Shahbaz Khan Baloch evidently as a memento of their visit. They also mention Rawal Amar Singh, son of Sabal Singh, the Jaisalmer ruler.

An inscription of Shah Jahan from a mosque at Amarpur, District Nagaur, refers to the construction of a mosque in the village Dinjawas in A.H. 1065 (A.D. 1655).

Of the seven epigraphs of Aurangzeb, one from Nagaur refers to the construction of a *haveli* with a gate by its owner Dungarsi, son of Narain Das Gahlot in A.H. 1081 (A.D. 1670), during the time of Raja Rai Singh Rathod. Two other records, one from a loose memorial pillar and the other from a private building, from the same town, refers to Dungarsi's son Jiwan Das as having constructed a well and a garden in A.H. 1111 (A.D. 1699-1700) and a building in A.H. 1117 (A.D. 1705), during the rule of Maharaja Indra Singh.

21. INSCRIPTIONS, DISTRICT NAGAUR.—Three Persian inscriptions dated A.D. 1651, 1653 and 1655 were found at Gunatdi; at Makran another inscription dated A.D. 1651 mentioning one Mirza 'Ali Baig, was noticed.

UTTAR PRADESH

22. INSCRIPTIONS OF THE MUGHALS, DISTRICTS ALLAHABAD AND KANPUR.—An inscription from Kara, District Allahabad, assigns the construction of a mosque to Khwaja Qurban 'Ali in A.H. 1014 (A.D. 1605-06), during the time of Jahangir. An interesting inscription of Aurangzeb was found on the Qal 'a-ki-Masjid at Jajmau. It refers to the renovation of the Jami' mosque by Sadr Shah mentioned above (no. 8) at the

instance of Qilij Khan, the ancestor of the Nizams of Hyderabad, in A.H. 1093 (A.D. 1682). The record also gives the full name of Qilij Khan as Abid Khan, son of Hadrat 'Azizan-i-'Alam Shaikh Siddiqi 'Aliabadi Samarqandi.

23. INSCRIPTIONS OF FIRUZ TUGHLUQ, DISTRICTS ALLAHABAD, KANPUR AND UNNAO.—The earliest inscription, dated A.H. 761 (A.D. 1360), from the tomb of Makhdum Shah at Jajmau, states that the foundation of this holy tomb of Shaikh 'Alau-d-Din Yusuf was laid by his son, the deceased *sadr* Ghiyathu'd-Din Muhammad. Another, from the same place, assigns the completion of the tomb to Abu'l-Mubarak Muhammad, son of the founder, in the following year. The third inscription of Firuz Tughluq, found at Bangarmau, District Unnao, records the construction of a tomb in A.H. 784 (A.D. 1383) by Muqarrabu'd-Din, a companion of Mafkharu'l-Umara Malik Sultanshah under the supervision of Jalal, son of Khusraw Bangarmawil. The fourth and the last, from Koh Inam, District Allahabad, assigns the construction of a Jami' mosque to Qadi Husam-u'd-Din Hasan in A.H. 786 (A.D. 1384).

24. MISCELLANEOUS INSCRIPTIONS, DISTRICTS ALLAHABAD, FATEHPUR, HARDOI, MIRZAPUR AND UNNAO.—An inscription from the tomb of Shaikh 'Alau'd-Din Shah at Bangarmau refers to the construction of the tomb in A.H. 7[30?] (A.D. 1330). Another inscription from the same place records A.H. 782 (A.D. 1380) as the date of the death of 'Azizu'-l-Haq, the spiritual guide of the composer of its text, Muhammad, son of Sufi. An epigraph on a loose slab in the tomb Burban Shahid at Hathgaon, District Fatehpur, mentions the construction of a well, a lake, a garden, etc. in A.H. 854 (A.D. 1450) by Fath Khan, son of Fath Khan, the *muqti*. A new record was found on a tomb at Safipur, District Unnao. It gives A.H. 884 (A.D. 1479), as the date of construction of the tomb of Miran Sayyid Ashraf Muhammad Hasani popularly known a *Khund Mir*. An epigraph at Bangarmau records the construction of a tomb of Shaikh Auliya by the great Khan Qaya Khan in A.H. 976 (A.D. 1568-69). An epitaph was found at Kara, District Allahabad, recording the martyrdom of Darwish Muhammad, son of 'Arab Shah *'Alam-Bardar* in A.H. 1016 (A.D. 1607). A new inscription was found near Ahraura, District Mirzapur, stating that Muhammad Farrukh excavated a canal in A.H. 1115 (A.D. 1703-04) for irrigation of public fields. An inscription on a grave at Bilgram records that Ghulam Rida and Bahadur 'Ali constructed the grave of Haji Rafi in A.H. 1174 (A.D. 1760-61).

A group of sixteen epitaphs of the members of the family of the celebrated saint of Allahabad, Shah Muhammad Ajmal and a few others , ranging from A.H. 1101 (A.D. 1689-90) to A.H. 1275 (A.D. 1858-59) was noticed in Daitra-Shah Ajmal and Gulab Bari graveyards. Lastly, a damaged inscription from a mosque at Bilgram states that the mosque of the saint was renovated by Maharaja Raja Jhau Lai in A.H. 1208 (A.D. 1793-94).

25. INSCRIPTIONS OF ' ALAU'D-DIN KHALJI, DISTRICTS FATEHPUR ANJ> KANPUR.—Three new inscriptions of 'Alau'd-Din Khalji were discovered. Of these, one from a modern mosque at Kot, District Fatehpur (pi. CXXXVI C), records the construction of a building by Husain, son of 'Umar in A.H. 696 (A.D. 1296). The other, from the same place, seems to record the constructon of a mosque by Malik Ja'far. The third was found on the 'Idgah at Jajmau, District Kanpur. It states that this building was constructed by Malik Saifu'd-Daulat wa'd-Din Yusuf Khani in A.H. 706 (A.D. 1307).

26. INSCRIPTION OF THE NAWWABS OF OUDH, DISTRICT HARDOI.—This epigraph, from a mosque at Bilgram, records its construction in A.H. 1195 (A.D. 1780-81) during the time of Asafu'd-Daula.

27. TWO INSCRIPTIONS OF THE SHARQIS OF JAUNPUR, DISTRICTS HARDOI AND KANPUR.—One fragmentary inscription of Ibrahim was found at Bilgram. It seems to

mention one Daulat Yar, *sharabdar* to the king. The other was discovered on the tomb of Makhdum Shah at Jajmau. Dated A.H. 850 (A.D. 1446-47), it records the construction of the tomb during the reign of Mahmud Shah by Shaikh Hammad, a great grandson of the saint whose name is given as Shaikh 'Alau'd-Din.

IV. NUMISMATICS AND TREASURE-TROVE[1]

ANDHRA PRADESH

1. MEDIEVAL COINS, GAJWEL, DISTRICT MEDAK.—Two silver coins, one of Shah Jahan and the other of Murtaza Nizam Shah, were found.

KERALA

2. KHALIFA COINS, KOTHAMANGALAM TALUK, DISTRICT ERNAKULAM.—Out of a hoard, four coins that were available were gold issues of the Ottoman Khalifa rulers of Egypt.

MADHYA PRADESH

3. NAGA COINS, AKODA, DISTRICT BHIND.—Two hundred and seventy copper coins of various types, belonging to the Naga rulers, were collected.

4. GADHAIYA COINS, MOHANIA-KHURD, DISTRICT NIMAR EAST.—A large hoard of silver Gadhaiya coins was collected.

5. GUPTA COINS, ERAN, DISTRICT SAGAR.—Copper coins of Ramagupta, some of them with the border-legend *sri-Ramaguptah* on the obverse and *garuda* on the reverse, were found.

6. PUNCH-MARKED COINS, ERAN, DISTRICT SAGAR.—A hoard of three thousand two hundred and sixty eight copper and silver punch-marked coins was discovered.

7. COPPER COINS, UJJAIN.—A new type of copper tribal coins, with Lakshmi holding a stalked lotus on the obverse and tree-in-railing and other symbols on the reverse, was identified.

MAHARASHTRA

8. MISCELLANEOUS COINS, KHADKIGHAT, DISTRICT BIR.—A hoard of two hundred and twelve silver coins, consisting *of ankushi* rupees and coins of Indo-British mintage, was found in the river-bed.

9. MISCELLANEOUS COINS, TOHANGAON, DISTRICT CHANDA.—TWO gold coins of Muhammad bin Tughlaq and a hoard of one hundred and nineteen silver coins of the Bhonslas, came to light.

10. MUGHUL COINS, ARCHADE, DISTRICT DHULIA.—Fiftyseven silver coins, one of Akbar, three of Shah Jahan and fiftythree of Aurangzeb, were found in a hoard.

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1 Information from : 1, the Superintendent, South-eastern Circle, and 3 and 4, the Superintendent, Central Circle, of the Survey; 2, the Director of Archaeology, Kerala State; 5-7 and 17 and 18, Professor K.D.Bajpai; 8-14, the Director of Archives and Historical Monuments, Maharashtra State ; 14, also from the Director of Archaeology, Mysore State; 15 , the Superintendent of Archaeology and Museums, Orissa State; and 16, the Director of Archaeology and Museums, Rajasthan State.

11. COINS OF THE GUJARAT SULTANS, WADI, DISTRICT DHULIA.—A hoard of one hundred and thirtysix coins of Mahmud III of Gujarat and one probably of a ruler of Khandesh was discovered.

12. SATAVAHANA COINS, WATEGAON, DISTRICT SANGLI.—Seven hundred lead coins, probably of the Satavahanas, and thirtyfive odd pieces were found.

13. BRONZE CORNUCOPIA, POSHERI, DISTRICT THANA—A horn-shaped bronze object, apparently a cornucopia used for rituals, was an interesting find. The decorative motifs, particularly the lion-face in the lowest band, show Roman influence. The object can be dated to the early centuries of the Christian era.

MYSORE

14. CHOLA AND OTHER COINS, KADTOKA, NORTH KANARA DISTRICT.—Six hundred and fifty small silver coins of Rajadhiraja I of the Chola dynasty, belonging to a hoard which also contained a gold coin of 'Alamgir II or the Nawab of Cuddapah, an unstamped silver piece and a packet of crumbled pieces of silver coins, were found.

ORISSA

15. PUNCH-MARKED COINS, JHARPADA, DISTRICT PURI.—A hoard of silver punch-marked coins was found at Jharpada near Bhubaneshwar. Eleven of them were obtained in the State Museum.

RAJASTHAN

16. SILVER COINS, DISTRICT KOTAH.—One thousand four hundred and twenty silver Mughul coins were found as treasure-trove.

UTTAR PRADESH

17. NIGAMA COINS, KAUSAMBI, DISTRICT ALLAHABAD.—Copper coins bearing the legend *ga[n]dhikanam* were identified. They were evidently issued by a guild of perfumers.

18. PANCHALA COINS, BAREILLY.—Copper coins of three hitherto-unknown Panchala rulers, Rudraghosha, Asvamitra and Yugasena, were identified.

V. OTHER IMPORTANT DISCOVERIES

ANDHRA PRADESH

1. ANCIENT MOUND, PEDDAMUDIYAM, DISTRICT CUDDAPAH.—Shri P. Kameswararao discovered sherds of black-pointed red ware and the megalithic Black-and-red Ware, besides some decorated pottery.

2. EARLY HISTORICAL SITE, PITHAPURAM, DISTRICT EAST GODAVARI.—Shri K. Ramamurty. assisted by Shri *K.* Raghavachari, noticed at Pithapuram, about 20 km. north of Kakinada, a mound with remains of brick structures and sherds of the Rouletted and Black-and-red Wares.

3. EARLY STONE Act SITES, DISTRICT GUNTUR.—Dr. K. D. Banerjee and Shri S. N. Raghunath discovered Early Stone Age sites yielding tools of Burkitt's Series II at Guttikonda, about 58 km. north-west of Macherla, at Kottapalle, about 8 km. from Macherla, on the Pendota-Vagu, about 10 km. upstream from Nagarjunakonda, and at Pondugala, about 26 km. north-west of Macherla. At the last two sites the tools were found associated with ancient river-terrace*.

4. MEGALITHIC AND EARLY HISTORICAL SITES. DISTRICT NALGONDA.—Shri S. N. Raghunath discovered megalithic cairn-circles at Karlapahad, about 16 km. north-east of Suriapet, and at Gangasanpalli, about 35 km. north of Jangaon, and an early historical site near Raigir railway-station. The latter yielded the Black-and-red Ware and black polished and red polished wares.

5. NEOLITHIC SITES DISTRICT NALGONDA.—Shri S. N. Raghunath discovered neolithic sites at Babusahibgudem and Namula, about 32 and 26 km. respectively from Sariapet. Both the sites yielded unpolished celts. No pottery was, however, found.

6. EARLY HISTORICAL SITES, KALINGAPATAM AND SINGUPURAM, DISTRICT SRIKAKULAM.—Shri Ramamurty, assisted by Shri L. K. Srinivasan. noticed sherds of the black polished ware and Black-and-red Ware in association with red and dull-red wares. ascribable to the first-second century AD., at a site near the ancient sea-port of Kalingapatam. Similar finds had been picked up at another site in the same village (1958-59, p. 68). Assisted by Shri K. Raghavachari he explored an ancient site near Singupuram, already famous as the ancient Simhapur. one of the capitals of the early kings of Kalinga and found sherds of the Rouletted Ware in association with black polished ware and Black-and-red Ware. The pottery-types are similar in shape and fabric to the already-known types from Salihundam. Mukhalingam and Kalingapatnam.

7. MEDIVAL TEMPLE AND MOUND. CHODAVARAM. DISTRICT VISAKHAPATNAM.—Shri K. Ramamurty, assisted by Shri L. K. Srinivasan. noticed two stone temples, one dedicated to Isvara and the other to Kesava, both ascribable to the fourteenth century, at Chodavaram. South of the same town, be also explored a mound called Kotadibha and found traces of a mud fortification ascribable to the medieval period, besides sherds of the Black-and-red ware and black polished and dull-red wares.

8. CHALUKYAN TEMPLE AND SCULPTURE, PITTAGEDDA AND GOVADA, DISTRICT VISAKHAPATNAM.—At Pittagedda, Taluk Chodavaram, Shri M. Venkataramayya noticed a temple called the Bhimesvara. The remains of the temple consists of the basement of the central shrine and a few square and octagonally-chamfered pillars in the typical Eastern Chalukyan style of the ninth-tenth century. The sculptures include, besides a huge *linga* and *nandi,* those of Subramanya, Mahishasuramardini, Brahmani or Sarasvati, Bhairava, Dakshina-murti, Ganapati and Nandikesvara.

During the clearance of land for the construction of a sugar-mill on the bank of a stream at Govada, a standing image of Vishnu Hrishikesa was discovered. It is a rare specimen of this form in this part of the country and on stylistic ground is ascribable to the early Eastern Chalukyan school of the seventh-eighth century.

9. EARLY BUDDHIST REMAINS AND SCULPTURES, GUNTUPALLI, DISTRICT WEST GODAVARI.—During the recent clearance at the site of the Buddhist remains at Guntupalli, Shri K. Raghavachari exposed a number of brick- and stone-built *stupas* with stone-paved platforms. At the entrance and also inside one of the *stupa-chaityas* sets of limestone statues of standing Buddhas of the early centuries, three in each, were found (pl. CXXXVII A and B). Of the other antiquities, mention may be made of a miniature stone *stupa,* a carved slab representing a *chaitya,* a small stone apsidal *chaiiya,* two decorated stone pillars and a stone relic-casket (pl. CXXXVIII A) containing a bone-relic Sherds of the Black-and-red Ware were also obtained.

DELHI

10. BRAHMANICAL AND JAINA SCULPTURES, DELHI.—Several pieces of Brahmanical and Jaina sculptures (pls. CXXXIX and CXL) were found in the course of re-laying the floor inside the Quwwatu'l-Islam mosque in the Qutab area.

11. MUGHAL POTTERY, DELHI.—In the course of clearance a large quantity of ornamental Mughal porcelain (pl. CXXXVIII B), mostly damaged, was found in the grounds of the Kotla Firuz Shah by the Gardens Branch of the Survey.

GUJARAT

12. BRONZES AND SCULPTURES, GHOGA, DISTRICT BHAUNAGAR.—A hoard of bronzes and marble stone sculptures reported from the Jaina temple was examined by Shri M. A. Dhaky and Shri H. P. Shastri The temple and sculptures were subsequently examined by Dr. S. C. Ray. The images, numbering two hundred and seventyeight (pls. CXL1 and CXLII), were found in an underground cell at the time of repairs to the temple. Most of them belong to the Jaina faith and represent *tirthankaras* and gods of the Jaina pan* theon; some are inscribed with dates varying from Vikrama-samvat 1123 to 1578. They range from 3*8 to 25 cm. in height. The three marble statues depict Buddha and Bodhisattvas and show unmistakable Mongolian features.

13. TERRACOTTAS, JUNAGADH.—Shri C M. Atri acquired ten terracottas of the Kshatrapa age.

14. TERRACOTTA FIGURINES, KANAD, DISTRICT SURAT—Shri D. B. Chitale discovered two terracotta figurines belonging to the early historical period.

15. MIDDLE STONE AGE SITE, THORIALI, DISTRICT SURENDRANAGAR.—Shri K. V. Soundara Rajan located a rich Middle Stone Age site near Thoriali not far from Sejakpur. The site is situated on the high ground forming the catchment of the Bhogavo, wherein raw material like chert, jasper and chalcedony seem to be readily available.

The industry, which showed evolution from large to comparatively diminutive tools, was characterized by blade-flakes, scrapers, burins, points and cores of the prepared platform technique.

JAMMU AND KASHMIR

16. NEOLITHIC TOOLS, GURAHOMA-SANGRI, DISTRICT SRINAGAR.—A polished stone axe and a harvester were found by Shri B. M. Pande and Shri S. S. Saar at Gurahoma-Sangri, situated on a high terrace intruding into the Wular lake, about 48 km. north west of Srinagar on the Srinagar-Bandipura road. Both these tools closely resemble the corresponding types found at Burzahom (1960-61, p. 11).

17. DWELLING-PITS, SRINAGAR.—Shri A. Ghosh and Shri T. N. Khazanchi located a dwelling-pit site on the Damodar *karewa*, about 10 km. south-west of Srinagar. The *karewa* is named after Damodara mentioned by Kalhana in his *Rajatarangini*. The structural features of the two noticed pits generally agree with those of Burzahom (1960-61. p. ID-

KERALA

18. MEGALITHIC SITES AND ROCK-CUT CAVES, DISTRICT CANNANORE.—Megalithic cist-circles, with diameters ranging between 8.53 and 9*44 m. were noticed at Naduvil-Amsom in Taluk Taliparamba. Rock-cut caves were also discovered in Vallianoor-Amsom in Taluk Cannanore.

19. RUINED TEMPLE AND SCULPTURE, ANNAMALAI-KARIKOD, DISTRICT ERNAKULAM.— Beautiful sculptures of Ganapati, Shanmukha with Vijaya and Jaya, Somaskanda, Parvati and Vishnu, assignable to the eleventh-twelfth century, were noticed in a ruined temple.

20. MEGALITHIC SITE, KALLAR, DISTRICT KOTTAYAM.—Megalithic burial-sites of the cist and menhir types were disovered in Pattom colony in Kallar in Blocks 106 and 500.

MADHYA PRADESH

21. PAINTED GREY AND N.B.P. WARES, AKODA, DISTRICT BHIND.—Shri Ram Babu discovered a few sherds of the Painted Grey Ware and a large quantity of the Northern Black Polished Ware along with black-painted red and black-and-red wares. The site was further explored by Shri J. P. Srivastava.

22. SURYA TEMPLE, BHARAULI, DISTRICT BHIND.—Shri J. P. Srivastava discovered a medieval Surya temple at Bharauli in Tahsil Mahagaon.

23. EARLY AND MEDIEVAL TEMPLES AND SCULPTURES, DISTRICT CHHATARPUR. — Shri S. B. Singh discovered remains of early temples at Dhamora, Kenri and Pathapur. One of the temples at Kenri comprises five *garbha-grihas* opening into a common pillared *mandapa* with a portico in front. He also found late medieval shrines at Bara, Pahargaon and Tidni and early medieval sculptures at Achal and Rajgarha.

24. MIDDLE AND LATE STONE AGE SITES, DISTRICT CHHATARPUR.—Shri R. Sengupta discovered two sites, one at Rajnagar, about 5 km. north of Khajuraho, and the other at Khajuraho itself, both yielding tools of the Middle and Late Stone Age.

25. EARLY STONE AGE TOOLS, KHARIAKHEDA, DISTRICT DAMOH.—During the course of his exploration along the Kusmi *nullah* at Kariakhera, Shri C. B. Trivedi collected tools of the Early Stone Age (pl. CXLIV B, 3).

26. EARLY STONE AGE TOOLS, DISTRICT GUNA.—Shri C. Krishna discovered Early Stone Age tools comprising handaxes, cleavers, choppers, etc., at Kadwaha and Mahua.

27. EARLY AND MIDDLE STONE AGE TOOLS, DISTRICT HOSHANGABAD.—During an exploration along the Ganjai, a tributary of the Narmada, Shri C. Krishna found Early and Middle Stone Age tools at Chhidgaon (pl. CXLIV A, 4, 6 and 11) and Raibor (pls. CXLIV A, 17 and 24, and CXLIV B, 1) in the river-section.

28. MEDIEVAL SCULPTURES, TIMURNI, ETC., DISTRICT HOSHANGABAD.—Shri C. Krishna discovered a large number of medieval sculptures, few bearing Nagari inscrip tions, at Timurni, Bhailipura, Raibor and Ahalwara.

29. MIDDLE STONE AGE AND MICROLITHIC TOOLS, MOHAL-KALAN, DISTRICT HOSHANGABAD.—At Mahal-Kalan on the bank of the Siyani, a tributary of the Narmada, microliths and Middle Stone Age tools were found by Shri C. Krishna.

30. COPPER CELT, DABAKIA, DISTRICT JABALPUR.—Shri C. B. Trivedi discovered a copper celt (pl. CXLV A) at Dabakia in Tahsil Patan.

31. MICROLITHS, DISTRICT JABALPUR.—Shri C. B. Trivedi found microliths at Majholi (pi. CXLIV A, 15, 22, 23, 25 and 26) and Umaria (pl. CXLV A, 10, 18, 19, 20 and 23), the latter on the Niwar *nullah.*

32. PAINTED ROCK-SHELTERS, GATAKHERA, DISTRICT JABALPUR.—Shri C. B. Trivedi found a painted rock-shelter at Gatakhera.

33. STONE SCULPTURES, DISTRICT NIMAR EAST.—Shri K. D. Bajpai found at Mandhata medieval status of Brahmanical gods and goddesses, some of which were of special iconographic interest. Besides, a large number of stone sculptures, including an inscribed image of Jaina *tirthankara* and an architectural piece depicting Siva and his *ganas*, were noticed at other sites in the District.

34. STONE AGE TOOLS, MEDHI, DISTRICT MANDIA.—Shri C. B. Trivedi found Middle Stone Age tools at Medhi (pl. CXLIV A).

35. ROCK-SHELTERS AND STONE TOOLS, CHANDGARH AND GHATAKHERI, DISTRICT NIMAR EAST.—Shri C. Krishna found rock-shelters, one at Chandigarh in Tahsil Burhanpur and the other at Ghatak in Tahsil Khandwa. A few tools of the Middle and Late Stone Ages were also collected from the vicinity of these rock-shelters.

36. COPPER CELT, RAMJIPUR, DISTRICT NIMAR EAST.—Shri C. Krishna found a copper celt (pi. CXLV B) with rounded butt-end and almost parallel sides at Ramjipura in Tahsil Harsud.

37. PAINTED ROCK-SHELTERS, BRIJPUR, DISTRICT PANNA.—A group of rock-shelters containing paintings, locally known as Brahaspati-kund, were discovered by Shri K. P. Jadia near Brijpur. The rock-shelters are situated in the Vindhyan range of the bank of river Baghan, about 40 km. north-east of Panna. The paintings depict scenes of hunting dancing and royal processions portraying both human and animal figures. Amongst the latter the giraff is particularly noteworthy. The pigment used is generally red, though yellow and green are sometimes also employed (pl. CXLIII). Some of the paintings show superimposition over an earlier layer.

38. EARLY STONE AGE SITES, SADUWA, DISTRICT PANNA.—Shri R. Sengupta picked up tools of the Early Stone Age from the bed of a nullah near the Saduwa bridge on Navgaon-Panna Road. A section of the nullah revealed an over 1-m. thick implementiferous conglomerate-deposit.

39. STONE AGE SITES, DISTRICT REWA.—Shri R. Sengupta collected Early, Middle and Late Stone Age tools from the bed of the Son bed near Devalondh bridge on the Rewa-Amarkantak road, Middle Stone Age tools (pl. CXLVI A) from Itar-Pahar (near caves 1, 2 and 10) and Nonghati, and microliths (pi. CXLVI B) from Itar-Pahar (near caves 10 and 11) and Nonghati. Shri J. P. Gupta discovered one of the rock-shelters in Itar-Pahar.

40. EARLY MEDIEVAL SCULPTURES, DISTRICT SAGAR.—A number of well-preserved sculptures were noticed by Shri K. D. Bajpai at Papet, Ishwarpur, Bina and Marhpiparia. Amongst them the life-size figure of a mother *nagi* in *varada-mudra* from Papet and statues of Lakshmi-Narayana and Varaha from Ishwarpur are particularly noteworthy.

41. EARLY STONE AGE TOOLS, DISTRICT SAGAR.—Shri C. B. Trivedi found Early Stone Age tools at Singhpur (pi. CXLIV B, 4 and 5) and Pirthipur (pl . CXLIV B, 2).

42. STONE AGE SITES, DISTRICT SAHDOL.—Shri R. Sengupta located Early Stone Age sites at Chandoli and Shikarganj, Middle Stone Age sites at Rajendragram and Jamoi and Late Stone Age sites near the source of the river Son at Amarkantak, besides those at Rajendragram and Jamoi.

43. BHARHUT SCULPTURES, RAMVAN, DISTRICT SATNA.—Shri K. D. Bajpai discovered several artistic Bharhut sculptures in the area around Ramvan. On two of these he identified the hitherto-unknown *Champeyya-and Ghatasana-Jatakas.*

44. MIDDLE STONE AGE TOOLS, SEONI—Shri C. B. Trivedi discovered Middle Stone Age tools (pl. CXLIV A, 2, 5, 7, 12, 13 and 14) at Seoni.

MADRAS

45. MICROLITHIC SITE, KURUVIKONDANPATTI, DISTRICT PUDUKKOTTAI.—Dr. K. D. Banerjee discovered a microlithic site at Kuruvikondanpatti, 29 km. south of Pudukkottui. The tool-assemblage closely recalls the Teri industry.

46. MICROLITHIC SITE, MANDIYUR AND KARIYAPATTI, DISTRICT RAMNAD .—Dr. K. D. Banerjee discovered tools of the *Teri* industry from Mandiyur and Kariyapatti, both about 35 km. south of Madurai.

MAHARASHTRA

47. LATE STONE AGE AND CHALCOLITHIC SITES, DISTRICT AURANGABAD.—Shri A. Sundara discovered a Late Stone Age site at the foot of a hill in Bhaigaon, Taluk Vaijapur. Finely-retouched tiny scrapers on jasper, a few chalcedony blades and a fluted core of chert were collected from this site.

In close vicinity was also located a chalcolithic site yielding burnished grey ware of the Brahmagiri type, black-painted red ware of the Jorwe fabric, black-and-grey ware occasionally with graffiti-marks, a sherd of the Malwa fabric, fluted cores with crested guiding-ridge, a few retouched blades and parallel-sided blades. Two copper objects resembling celts are reported to have been found earlier in the neighbourhood of this site.

Shri D. M. Kulkarni discovered a chalcolithic site on the left bank of the river Dudna at Aurangpura and at Kandari. Parallel-sided blades, points, lunates, etc., were collected from these sites. He also located a Middle Stone Age site at Gevrai which yielded scrapers having scanty retouch.

48. BUDDHIST REMAINS AND ANTIQUITIES, KANHERI, DISTRICT BOMBAY SUBURBAN.—In the course of debris-clearance in front of Caves 2, 3, 4 and 38 and in Caves 2 and 33 at Kanheri the following noteworthy finds were brought to light by Shri A. Sundara. About 7 m. away from Cave 3 was found a dilapidated brick structure (pl. CXLVII B), square on plan and with two pieces of well-cut stones, each with a central aperture and bearing inscription in characters of the fifth-sixth century. Traces of a regular floor of yellow earth were also found around and beneath it. In front of Cave 4 a small circular structure was exposed. In front of Cave 38 fiftyfive brick *stupas* of varying diameters, lined in three rows and erected on a well-paved brick floor, were exposed. Their plastered exterior showed a coating of red ochre. In addition, a flight of steps at the north-west corner of the plinth of the ruined stone *stupa*, the plinth, the neat stone pavement on the western side, the ornamental brickwork round the lowest belt of the *stupa*, the rock-cut flight of steps and to the rock-cut path to the south of the *stupa* were also exposed. An inscription in Brahmi, reading *pratigrihita,* carved on the wall at the beginning of the rock-shelter, was noticed. In front of Caves 2, 3 and 4 were found five inscriptions, one complete and the others broken, of slightly-varying dates, a solid stone *stupa,* few sculptural pieces, a stone casket containing an earthen pot (pl. CXLVII A) and beads of carnelian and shell. In front of Cave 2 were found two silver and three copper coins along with polished hemispherical stone objects of various sizes and colours, a broken copper lotus, decorative terracotta objects and plenty of loose brick slabs, besides sherds of the Northern Black Polished Ware and black-and-red wares. In Cave 33 a large number of clay objects (pl. CXLVIII), including parts of small votive *stupas,* inscribed tablets with Buddha in *bhumisparsa-mudra,* the Bodhisattvas, other images of the Buddhist pantheon and round seals of *circa* tenth century were noticed.

49. EARLY HISTORICAL SITE, BHAMIWARA, DISTRICT NAGPUR.—An early historical site was discovered by Shri B.P. Bopardikar at Bhamiwara on the right bank of the Sand nullah, a tributary of the Kanhan. The site also yielded some fluted cores.

50. MIDDLE AND LATE STONE AGE SITES, DISTRICT NAGPUR.—Shri B. P. Bopardikar found tools of the Middle Stone Age, comprising points, scrapers, etc., along with microliths, in the loose gravel of the Sand nullah at Nawegaon, Dhamangaon, Maroli and Bhamiwara, located in Tahsil Ramtek, about 40 to 45 km. north-east of Nagpur.

51. MIDDLE STONE AGE SITE, JUNAPANI AND PHETRI, DISTRICT NAGPUR.—Shri B.K. Thapar found Middle Stone Age tools near Junapani and Phetri. Similar tools were also recovered from the cairn-filling of the excavated megaliths (above, p. 33), indicating that the cairn-material was collected from the neighbouring site of the Middle Stone Age.

52. MEGALITHS, NAGPUR.—Stone circles enclosing cairns were noticed by Shri S. K. Mukherjee on the Seminary Hills in Nagpur itself along the road leading to the Starky Point. Shri K. S. Ramachandran found megalithic monuments of similar type at Nagalwadi, Sangam, Sukli, Takli and Wanadongri.

53. CHALCOLITHIC SITE, TAKALGHAT AND VYAD, DISTRICT NAGPUR.—Shri K. S. Ramachandran found black-painted red ware of the chalcolithic assemblage at Takalghat and Vyad, located about 32 and 20 km. respectively to the south-west and west of Nagpur. In addition, at both these sites black-and-red and thick micaceous wares,

similar to those obtained from the excavated megaliths at Junapani (above, p. 33), were also noticed.

54. STUPA-MOUND AND EARLY SCULPTURES, TER, DISTRICT OSMANABAD.—Shri M. N. Deshpande discovered at Ter a *stupa-mound,* together with several brick structures in the neighbouring fields, indicating the existence of a large Buddhist eastablishment. He also brought to light five sculptured limestone slabs (pls. CXLIX and CL) from the fields in the vicinity of the *stupa-mound* and from the debris near the Maruti temple at Panwadi, a small village to the north, on the other side of the town of Ter. The sculptures, belonging to *circa* second century A.D., presuppose the existence of a *stupa* decorated with limestone slabs in the Andhra fashion. Three such limestone slabs had been discovered at Ter by Fleet in the beginning of the present century. The finds suggest the influence of the Amaravati school in the Deccan.

MYSORE

55. MEGALITHIC AND EARLY HISTORICAL SITES, ANEGONDI, ETC., DISTRICT RAICHUR.—Shri A. Sundara discovered a natural rock-shelter at Anegondi containing paintings in red ochre predominantly of the deer, humped bull and conventionalized human figures. No tools were found in or around the rock-shelter. However, the occurrence of a single scraper on cherty quartz, typologically of the Late Stone Age, collected 201 m. from the rock-shelter, may be mentioned.

An early historical site was discovered at Chinohalakote. Sherds of the Russet-coated Painted Ware and black-and-red ware were found, besides many sculptures and bas-reliefs on stray pillars of the medieval temples in the locality as also on a steep rock of Vali-Bhandara.

To the west of Anegondi, near the right bank of Tungabhadra, was discovered a small mound, traditionally known as Validibba or Vali-Kashtha, yielding sherds of the Black-and-red Ware with graffiti and red-slipped ware, similar to the megalithic ware from Maski, and a good amount of iron slag.

56. PAINTED ROCK-SHELTER AND CHALCOLITHIC SITE, CHIKRAMPUR, DISTRICT RAICHUR.—Shri A. Sundara discovered at Chikrampur a rock-shelter with paintings in red ochre of deer, bull, etc., similar to those at Anegondi. In front of the rock-shelter was located a chalcolithic site which yielded neolithic implements, such as ground stone axes, hoes, fluted cores and blades, and coarse-textured grey ware similar to those from Maski, besides a few red-slipped coarse micaceous ware.

ORISSA

57. EARLY STONE AGE TOOLS, AMBADALI-SASAN, DISTRICT MAYURBHANJ.—Shri H. N. Jena picked up Early Stone Age tools.

58. NEOLITHIC TOOLS, HARIPUR, DISTRICT MAYURBHANJ.—At Haripur, already known for the find of a single neolith (1958-59, p. 38), was found another neolith by Shii H. N. Jena, who also picked up a curious polished stone with a pointed butt-end and splayed-out thickened head and a polished oblong object (pl. CLI A). .

59. EARLY STONE AGE SITE, KANTAPAL, DISTRICT MAYURBHANJ.—Shri B. K. Thapar, assisted by Shri J. P. Joshi and Shri N. C. Ghosh, found Early Stone Age tools along the bed of the Burhabalang river, south of Kantapal. The tools were essentially rolled, indicating transportation from their original site. The collection includes such types as the Acheulian handaxe, cleaver, chopper, etc.

60. EARLY STONE AGE TOOL, KHANDAGIRI, DISTRICT PURL—Shri S. K. Ghosh found an almond-shaped handaxe of the Early Stone Age at the foot of the hill of Khandagiri.

PANJAB

61. PAINTED GREY WARE SITE, HARIPUR, DISTRICT JULLUNDUR.—Shri R. P. Das discovered the Painted Grey Ware at Haripur, about 10 km. north-east of Jullundur.

62. EARLY MEDIEVAL SCULPTURES, KANGRA.—During clearance within the Kangra fort a number of early medieval sculptures were found; amongst them a panel of four-headed Siva (pl. CLII A) is worth mentioning.

63. HARAPPAN SITES, DISTRICT LUDHIANA.—Shri R. P. Das discovered typical Harappan Ware, including the dish-on-stand, at Deheru, Manupur and Kheri-Nudh-Singh along the course of the Budhanala, believed to be an early bed of the Sutlej.

RAJASTHAN

64. EARLY MEDIEVAL SCULPTURES, SAINTHILI, DISTRICT ALWAR.—-Shri N. R. Banerjee discovered a large number of sculptures (pi. CLII B and C) in the ruins of a richly-sculptured temple-complex, dated to *circa* tenth century, at Sainthili, 209 km. north east of Alwar. A few inscriptions were also discovered.

65. MEMORIAL-STONES, BHADAMA, DISTRICT NAGPUR.—Shri N. M. Ganam dis covered at Bhadama a number of dated memorial-stones, of which three belonged to the Chahamana dynasty of the medieval period.

UTTAR PRADESH

66. EARLY HISTORICAL SITE, GANWARI, DISTRICT BASTI—-Shrimati D. Mitra explored a promising mound at Ganwari near Piprahwa, famous for its *stupa* with the relics of Buddha, and found dishes of grey ware and sherds of the Northern Black-Polished Ware, besides the associated red ware. The last ware comprised such types as the basin, cooking-pot with triangular handle and spouted vase. In the collection of small finds were included a bead of chalcedony, terracotta dabbers, net-sinkers and human and animal figurines.

67. STONE AGE TOOLS, KALSI, DISTRICT DEHRA DUN.—Rolled Early Stone Age tools, comprising handaxe, chopper, etc. (pl. CLI B), were discovered by Shri R. P. Das on a terrace of the Yamuna near Kalsi.

68. PAINTED GREY WARE AND LATER FINDS, ATRANJIKHERA, DISTRICT ETAH.—Shri R. C. Gaur further explored the mounds at Atranjikhera (1960-61, p. 35), including those located in the vicinity and found, besides the Painted Grey (pl. CLIII A) and the Northern Black Polished Wares, a large number of terracotta objects including human (pl. CLIII B) and animal figurines of later periods and coins of Muslim rulers. He also observed brick structures and terracotta ring-wells in the exposed sections of the mounds.

69. BUDDHIST STUPA, NALA, DISTRICT GARHWAL.—Shri K. P. Nautiyal discovered a Buddhist *stupa* at Nala near Gupta-Kashi.

70. EARLY HISTORICAL SITE, BANARASIA, DISTRICT GORAKHPUR.—Shrimati D. Mitra found a habitation-site with brick structures at Banarasia and collected dish-fragments

of grey ware, sherds of red ware comprising the carinated *handi*, cooking-vessel with triangular solid handle and basin, a copper Kushan coin, a terracotta bead and two fragments of terracotta figurines.

71. EARLY STONE AGE TOOLS, DEOGARH, DISTRICT JHANSI.—Shri R. Sengupta and Shri M. C. Joshi located another Early Stone Age site in a the fort at Deogarh, within 100 m. of the Jaina group of temples.

72. KUSHAN SCULPTURE, JAITPUR, DISTRICT MATHURA.—A red sandstone sculp ture representing a seated Kushan king (pl. CLII D), wearing the typical long coat and tight trousers, carrying a broad sword in the right hand and a stalk-like object in the left and with mutilated head and feet, was discovered at Jaitpur by the officials of the Uttar Pradesh State Department of Archaeology. The sculpture was recognized as a royal Kushan portrait by Shri Krishna Deva.

WEST BENGAL

73. BLACK-AND-RED WARE, NANUR, DISTRICT BIRBHUM.—At Nanur, where sherds of the black-and-red ware had been previously found by Shrimati D. Mitra, knife-edged bowls, sherds of red ware with painted bands, as also incised and stamped, in addition to those of the black-and-red ware, were collected by Shri S.M. Das.

74. MICROLITHIS, BENURAJARGARH, DISTRICT MIDNAPUR. —Shrimati D. Mitra found a few microliths at Benurajargarh.

75. TERRACOTTA FIGURINES AND PLAQUES, DISTRICT MURSHIDABAD.—In course of the repairs to and during clearance around the Katra mosque, Shri I.B. Saha found a number of terracotta figurines and two carved terracotta plaques. The plaques were found fixed in the wall of the mosque with their carved face hidden in the core. One of them, with three dancing *gopis,* depicts some episode of the *Krishna-Ma,* while the other, with two *vanaras,* one in full armour, illustrates some scene from the *Ramayana.* The terracottas, of late date, represent Krishna, Ganesa, a cavalier, an elephant with mahout and two closed pavilions and a seated European figure. Apart from these were found pots, terracotta dabbers and rattles.

VI. MUSEUMS

1. RAJPUTANA MUSEUM, AJMER.—Among the new acquisitions to the Museum mention may be made of a fine medieval sculpture representing mother with child, collected from Parlia, District Ajmer. A silver coin of Akbar dated A.H. 988 was another notable acquisition. The sculptural and epigraphical galleries were re-arranged, and in the main gallery an improvement was made in the display of unique objects. Several other interesting objects which were hitherto lying in the godowns were also put on display.

2. ALLAHABAD MUSEUM, ALLAHABAD.—The year's collection comprised thirtyone sculptures, two hundred terracottas, sixtysix seals and sealings, three hundred and thirty-two copper coins, six silver coins, six gold coins, and thirtyone animal-shaped beads. Among the outstanding sculptures were a medieval Surya and a post-Gupta Nataraja. The terracottas included figurines from the Panchala region, reflecting foreign influence. One of them was a figure playing on guitar. Another represented Karttikeya and yet another a mother with child in the typical Gandhara style. A skin-rubber bearing a winged couple on the dome was one of the most striking pieces from Jhusi, District Allahabad. Of the new types of copper coins, those containing names like *sri-Nandi, Gadhikara, Hastipurvasha, Malayakanam* and *Samugupta* are specially noteworthy. A copper seal from Mathura contained legend *Sivasya.* Some of the clay sealings from Jhusi had the legends reading *Padmanabhasvami, Vishnusvami* and *Devasvami.* A clay mould of a Kshatrapa coin and a gold coin of Kumaragupta (Horseman Type) were among the other interesting objects from Jhusi. A stone fragment bearing an inscription in Brahmi characters of about the second century B.C. was acquired from the neighbourhood of Kausambi.

3. ARCHAEOLOGICAL MUSEUM, AMARAVATI.—As a step towards the reorganization of the museum, a new gallery on the southern extension of the museum-building was set up for exhibiting important sculptures and inscriptions. About a hundred pieces recovered from the *stupa-site* and its vicinity were removed to the museum for display.

4. SHRI BHAVANI MUSEUM AND LIBRARY, AUNDH.—Four stone inscriptions were brought to the Museum. As many as one hundred and eight coins including four Satavahana ones from Vategaon, District Sangli, were acquired from Aundh and its neighbourhood. The following Tibetan objects were presented to the Museum : fifteen terracotta figures and *stupas,* four manuscripts, two silk banners and a copper pot.

5. MUSEUM AND PICTURE-GALLERY, BARODA.—An interesting set of terracottas from north India (pl. CLIV A) and an old stone jar (pl. CLIV B), originally from Shamlaji, revealing Greek influence, were acquired by purchase.

6. STATE MUSEUM, BHARATPUR.—The sculptures in the interior were shifted to the outer verandah where they were displayed on wooden pedestals. New descriptive

labels were added to the sculptures displayed in the Darbar Hall and the verandah. Among the fresh acquisitions made during the year, the following deserve special mention : a stone sculpture representing a strange animal and a *yaksha,* from Aghapur, of the Kushan period; a Siva-and-Parvati sculpture of the Gupta period; head of a Jaina *tirthankara,* from Nethar; and a Trimurti-Mahavishnu with ten incarnations on either side and *nava-grahas* above, figures of Ganesa and Vishnu and upper part of a Siva-image, from Noh. A manuscript of the *Bhagavad-gita* is noteworthy.

7. STATE MUSEUM, BHUBANESWAR.—A large number of pedestals and show-cases were provided for the display of archaeological exhibits and considerable progress was made in their arrangement. As many as three hundred and ninetyseven manuscripts, some of them very rare, were added to the already-rich collection of manuscripts.

8. PRINCE OF WALES MUSEUM OF WESTERN INDIA, BOMBAY—The galleries of sculptures and bronzes, which had been closed for some time due to the new construction, were thrown open to the public. Surplus objects, such as plaster casts of the Assyrian and Greek sculptures, were distributed to different institutions.

The new mezzanine gallery, constructed with aid from Government of India, is being redesigned to display exhibits showing the history of Indian miniature painting. An exhibition of miniatures, Gandhara sculptures and stuccos and south Indian bronzes in the collection of Sir Cowasjee Jehangir was held in the new hall of the Museum.

The fresh acquisitions include an image of a *gana* of the Gupta period kindly presented by Shrimati Pupul Jayakar and eleven miniature paintings, several of them are of the Pahari schools.

9. ASUTOSH MUSEUM OF INDIAN ART, CALCUTTA.—About three hundred objects, collected by exploration, apart from the antiquities from the excavation at Chandraketugarh (above, p. 62), were acquired during the period. Extensive explorations were conducted in the lower Gangetic plain of West Bengal, particularly at Harinarayanpur and Chandraketugarh in 24-Parganas and Tamluk and Patra in Midnapore District, variously by Shri C.R. Roychoudhury, Shri B. K. Biswas, Shri K. M. Biswas, Shri D. K. Roy, Shri H. K. Sanyal and Shri S. S. Mahapatra. From the vicinity of Hoshangabad and the adjoining parts of central India in the Narmada valley Early Stone Age implements and microliths, numbering about fifteen hundred, were collected.

In continuation of the previous year's work at Harinarayanpur (1960-61, p. 70), the Museum 'acquired a few more terracotta animal and bird figurines seemingly of protohistoric [character. Other antiquities from the site comprised several terracottas of Sunga-Kushan affinity, including the bust of *yakshi,* some copper coins and about three hundred beads of precious and semi-precious stones.

From Chandraketugarh came a small terracotta sealing, bearing a standing, almost nude, human figure with an elaborate head-dress, suggesting an archaic character. Among the other remarkable antiquities were a round seal of bone, showing a pair of lanky elephants with uplifted trunks, and a mutilated terracotta sealing with a circular Brahmi inscription containing the usual Buddhist formula, palaeographically assignable to about the third century A.D. The following terracottas deserve mention : upper part of a terracotta plaque showing an exquisitely finished *yakshi* (pl. CLV, 1) of the second century B.C.; a tablet with a cock and hens (pl. CLV, 2); two hollow sitting Kubera figures in the round (pl. CLV, 3); a plaque with the middle part of an elegant figure playing on harp (pl. CLV, 4); fragment showing an abduction-scene; lower part of a female figure bedecked with girdles and jewels on the waist; a peacock and an elephant toy-cart (pl. CLV, 5); a damaged plaque showing two winged lions, sitting back to back on either side of a

pillar-base (pl. CLV, 6); a pair of tablets showing a goddess(?) striking a male figure after the fashion of Mahishamardini; a tablet depicting wrestlers; a mutilated terracotta plaque showing the upper part of a female figure, possibly Sri, of the second century B.C., holding in one of her hands a lotus-stalk; and a number of other Sunga-Kushan terracottas. From the same site were collected three well-preserved specimens of copper punch-marked coins of the Ship type, a number of terracotta ear-studs of *patra-kundala* motif and about three hundred beads of precious and semi-precious stones.

Among the antiquities from Patra was a unique grey sandstone four-armed Vishnu-Lokesvara of about ninth century A.D., standing on the canopy of a seven-hooded serpent (pl. CLVI A). Several temple terracottas of the early eighteenth century from Bhatpara, 24-Parganas, depicting groups of birds and animals, were among other notable acquisitions.

Objects presented or purchased included a stone Gaja-simha, from Orissa, two votive *stupas* of the tenth century A.D., one from Luckeesarai, District Monghyr, and other from Burdwan, a medieval wooden panel representing *Ramayana* scenes, from south India (pl. CLVI B), a composite set of seventeenth-century terracottas depicting war between Rama and Ravana, from Bengal; a sixteenth-century western Indian bronze depicting Mahishamardini; metal figures of enshrined Lakshmi and wheeled elephants, from West Bengal; a large Bengal *kajal-lata* with engravings; and three Nepalese lamp-stands of the seventeenth-eighteenth century (pi. CLVI C and D), one of them embellished with a *mukha-linga* on top.

Finally, some rare Rajasthani paintings, *kanthas* of early nineteenth century, from Jessore, and colourful Baluchar *saris,* from Murshidabad, woven with scenes of late Mughal and East India Comapany inspiration, were among the additional acquisitions.

10. COLLECTION OF THE DEPARTMENT OF ARCHAEOLOGY WEST BENGAL, CALCUTTA.—The Department collected a large number of stone sculptures, the prominent of them being: images of Marichi, Surya bearing an inscription, Devapala, Vishnu-Yogasana, Vishnu-Anantasayin, Sadasiva, Chamunda, Hevajra, Karttikeya (pi. CLIV C), Charchika, (inscribed), all from West Dinajpur; Surya, Ganesa and Vishnu, from Malda; another Vishnu, from Manigram in Murshidabad District, and Varaha, Chamunda and Vishnu, from Burdwan District. The other acquired antiquities included a letter addressed by Rani Bhavani to Maharaja Nanda Kumar, a wood carving depicting *Krishna-lila* scenes from East Bengal, and some rare bronzes and coins, among which were gold coins of Samudragupta (Standard Type) and Chandragupta II (Archer Type), terracottas and scroll paintings of about the eighteenth century.

11. INDIAN MUSEUM, CALCUTTA.—The collection was enriched by the acquisition of four hundred and twentyone lithic tools collected from Madhya Pradesh and Maha rashtra, ninetyfive copper and silver coins, including early cast, Bengal Sultanate and Mughal, and a seal of semi-precious stone with a Persian inscription dated A.H., 1252 (A.D. 1836). In addition, four hundred and twentyeight antiquities, which included six relic-caskets of gold, silver, copper and crystal, from Salihundam, Lauriya-Nandangarh and Taxila, fortyseven metallic objects from Ujjain, three hundred and seventyfive coins including those of the Western Kshatrapas, from Gondarmau (1954-55, p. 63), and punch-marked, early cast and medieval coins, from Ujjain, were received on loan from the Archaeological Survey of India. Noteworthy of these acquisitions were palaeoliths, from Hoshangabad, microliths, from Jabalpur and Nagpur, copper cast coins, from Harinarayanpur, 24-Parganas, and three rare silver coins of Sultan Shamsu'd-Din Ahmad Shah of Bengal, one of which was undated, another bore the date A.H. 836 or 838

(A.D. 1432 or 1434), and the third had the date A.H. 837 (A.D. 1433). The date A.H. 837 was previously unknown on the coins of this Sultan (pl. CLV1II A).

The work of modernizing the galleries was continued. The Mathura sculptures in Bay 2 of the Sculpture Gallery were re-arranged against suitable background with proper lighting. Some of the smaller antiquities formerly exhibited in glass-cases in the same gallery were displayed in newly-designed wall-cases. Gandhara sculptures and architectural pieces were arranged in the interior of the remodelled show-case in the Gandhara Gallery (pl. CLVII). Chronological display of early Indian inscriptions in the northern wing of the new Inscriptions Gallery on the first floor verandahs of the Museum was completed.

12. BHURI SINGH MUSEUM, CHAMBA.—As many as thirty Pahari miniature paintings belonging to the early nineteenth century and two stone sculptures of the seventeenth-eighteenth century were added to the collection during the year. The display of the paintings received attention.

In accordance with a decision arrived at between the Government of India and the Himachal Pradesh Administration, the mural paintings in the Rang-Mahal at Chamba would be stripped ; three-fourths of them would be placed in this Museum and the remaining would be transferred to the National Museum at New Delhi. A team of experts from the National Museum started the work for stripping.

13. STATE CHANDRADHARI MUSEUM, DARBHANGA.—The acquisitions made during the year included some Northern Black Polished Ware sherds from Balirajgarh and a a statue of Chandi from Belasonemati. The collection of old arms in the Museum was enriched by the additions of an old steel helmet, steel armours and the barrel of an indigenous steel cannon. An illustrated manuscript of Shahnama, dated A.H. 987 (pl. CLVIII B and C), and a Greek bronze statue were other notable fresh acquisitions.

14. ARCHAEOLOGICAL MUSEUM, RED FORT, DELHI.—The general display of exhibits was improved by re-arranging them subjectwise. Representative *farmans* and other specimens of calligraphy were displayed in remodelled show-cases.

15. STATE MUSEUM, GAUHATI.—Among the various fresh acquisitions to the Archaeological Section, the following deserve notice : an image of Hari-Hara, bearing an inscription of the ninth-tenth century; an image of Vamsi-Gopala in *tri-bhanga* pose standing on a lotus; a wooden image of Garuda cut out of a single block and painted with indigenous Assamese colours, representing the Satriya art of Assam; and a stone inscription in old Assamese script and Sanskrit language, belonging to Rajesvarasimha and dated in the Saka year 1675.

16. ARCHAEOLOGICAL MUSEUM, HAMPI.—Rearrangement of sculptures in the Museum was continued (1960-61, p. 72). Four charts depicting the development of Telugu and Kannada scripts and the genealogy and extent of the Vijayanagara kings and empire were introduced in the galleries.

17. STATE MUSEUM, HYDERABAD.—Of the sculptures acquired during the year, an image of standing Buddha (pl. CLIX A) from Uppugundur, District Guntur a *stupa-slab* of the Ikshvaku period, a Mahishamardini sculpture in the Rashtrakuta style and a few hero-stones belonging to the Virasaiva sect are worth mentioning.

Lighting and display arrangements received special attention. A new sculpture gallery for the Kakatiya sculptures was opened. The display in the bronze section of the Museum was enriched by the addition of a large number of Jaina bronzes (pl CLIX B and C) of about the eighth-ninth century, from Bapatla, District Guntur and three

bronze bells (pl. CLX A) of the eleventh-twelfth century and images of Rama, Lakshmana and Sita of the fourteenth-fifteenth century, from Kulpak, District Nalgonda. A large number of coins, some of them very rare, "were also acquired.

In order to exhibit the sculptures and antiquities recovered from the Yelleswaram excavation (above, p. 2), a new pavilion (pl. CLX B) was opened.

18. CENTRAL MUSEUM, JAIPUR.—The fresh acquisitions included miniature paintings of different schools, line-drawings of certain emperors in the style of Bundi school and objects of brassware, puppets, ivory objects, coins, etc.

19. KOLHAPUR MUSEUM, KOLHAPUR.-—Of the objects acquired for the Museum from Shri M. G. Gulvani of Panhala, the following may be mentioned: a broken image of Khanodba carved on a small piece of stone ; a small idol of Mallari-Mhalsakant with his consort; a silver coin of sri-Pragmalji and old-type smoking-pipe. Portions of two large hero-stones, one of them with a short Kannada inscription, were also acquired. A statue of Rama and a hero-stone found near Balgopal-Talim, District Kolhapur, were removed to the Museum.

20. STATE MUSEUM, LUCKNOW.—During the year a fairly large number of anti quities, such as stone sculptures, terracottas, beads, coins, seals and sealings, were acquired. The most prominent of them are as follows: an eight-armed image of Durga seated in *lalitasana* on a lion, right foot resting on a lotus, belonging to the Magadha school of about the eleventh century ; a votive *stupa*, round at the top and octagonal below, containing four seated Buddhas around its body, belonging to about the ninth century ; terracottas, including a toy-cart with bulls of the Sunga period, Kushan head, a female head of the Gupta period with exquisite hair-arrangement and a figurine of crocodile, variously from Kausambi, Ahichchhatra and other sites ; seals from Sunet, District Ludhiana, one of them with the legend *Krishnadattasya* ; and seventyfive beads, of which a tortoise-shaped one is worth noting.

As many as two hundred and thirtyseven coins were acquired ; of them twentythree were gold, thirty silver and the rest copper. The outstanding among them were as follows: a gold coin of Gupta Prakasaditya, Horseman Type; a gold *muhr*, each of Akbar, mint Urdu-e-Zafar Qarin, date 1000, of Jahangir, mint Agra, date 1019, month Bahman, of Shah Jahan, mint Akbarabad, date 1042 (rare type), of Aurangzeb, mint Gulbarga, date 1109 (rare), and of Dholpur State in the name of Shah 'Alam II, mint Kohad, date 1188 (rare) ; a silver rupee of Jahangir with the title Burhanu'd-Din, mint Ahmadnagar (very rare); a silver rupee of Shah Jahan, mint Daulatabad, date 1037 (type and date rare) ; four copper coins of Chandragupta II (very rare) ; and a silver medal of Taj-Mahal Begam of long Ghaziu'd-Din Haidar|of Avadh.

21. FORT ST. GEORGE MUSEUM, MADRAS.—Acquisitions during the year included one hundred and twelve gold and silver coins, mostly of the British period, twentyfive porcelain objects and two medals.

The modernization of galleries continued (1960-61, p. 73). The internal lighting of the remodelled wail-cases as well as other show-cases exhibiting silver-ware, documents, etc., was improved. A life-size model showing the uniform worn by the officer who used to introduce the local rulers and other high dignitaries to the governor during the early British days was prepared for display in the museum.

22. GOVERNMENT MUSEUM, MADRAS.—Twelve bronze Brahmanical images were acquired as treasure-trove finds during the year. Among other miscellaneous acquisitions, mention may be made of four stone pillars from the Ekamresvara temple at Kanchipuram,

one of them with an inscription in the Pallava-Grantha characters mentioning certain *birudas* of Mahendravarman I Pallava.

A plaster replica of the Mathura Buddha was obtained from the National Museum, New Delhi, in exchange of some prehistoric antiquities.

23. ARCHAEOLOGICAL MUSEUM, NAGARJUNAKONDA.—Some limestone drum-slabs of the third century were displayed in the galleries from the reserve-collection. Systematic efforts were made to look for broken fragments of sculptures in the godown and to piece them together.

24. NATIONAL MUSEUM, NEW DELHI.—The freshly-acquired two hundred and sixtysix objects included: prehistoric tools, received from the Director General of Archaeology in India, the Government Museum, Madras, the Maharaja Sayajirao University of Baroda and the Allahabad Museum ; megalithic pottery, from south India ; ivory carvings, from Begram ; a sculpture of Garuda from Rajasthan ; a standing image of Vishnu of the Pallava period, from Shri S. T. Srinivasa Gopalachari ; a sculpture of Uma-Mahesvara, from Orissa ; and a stone image, from Mayurbhanj.

The prehistoric and protohistoric galleries were re-arranged for better display. Sketches, maps, enlarged photographs and descriptive labels were provided.

Pottery from western India, particularly from Somnath and Devnimori, presented by Dr. B. Subbarao, was added to the study-collection.

Ivories from Begram, Afghanistan, on loan from the Archaeological Survey of India (pl. CLXI), were displayed in the Maurya-Sunga gallery, and the excavated material from Taxila was likewise displayed in the Gandhara gallery in their proper context.

Select copper-plate grants were exhibited in a special built-in wall-case so as to provide for their visible storage. An assortment of sculptures, representing the southern and northern schools, chronologically arranged, were installed in the rotunda of the ground floor to serve as an additional sculpture gallery.

Of the acquired coins, two gold coins of Muhammad bin Tughluq, both issued from Delhi Hazarat and one dated A.H. 726, and two postal copper coins issued from Patna in 1774, one of them a one-anna and the other a two-anna piece, are noteworthy. The acquired miniature paintings, some of them of unique value, are representative of all the medieval schools.

25. PATNA MUSEUM, PATNA.—The Museum acquired one hundred and thirtyfour coins and fourteen other objects of antiquarian interest. Those outstanding included a four-armed image of Kali riding a lion, from the river Phalgu in Gaya District; a stone lintel with floral designs, of about the tenth century, from Rewan, District Patna; an inscribed stone seal with a legend in the post-Gupta script; a copper-plate grant of the Gahadavala king Vijayachandra; another copper-plate grant of a ruler named Suryaditya; a stone inscription in two pieces pertaining to Jivagupta; and three fragments of a Persian inscription dated A.H. 1194.

Of the coins, one hundred and twenty were punch-marked, one, copper, was of Kanishka, two, gold, were of Akbar and two, silver, were of Maharaja Jayasimha.

26. ARCHAEOLOGICAL MUSEUM, UNIVERSITY OF SAUGOR, SAGAR.—The collections of the Museum were augmented by the addition of prehistoric implements from Sagar District and a number of sculptures, architectural pieces and coins from the Mahakosala area of Madhya Pradesh. Special mention may be made of a beautiful female bust and an inscribed upright pillar showing Siva-and-Parvati in the seated posture and other scenes. An inscribed *tirthankara* image of the twelfth century, from Khandwa town,

was also acquired. The epigraphical gallery of the Museum was enriched by the acquisition of a stone inscription of the third century, from Eran, mentioning a Saka King. The newly-acquired coins included punch-marked and tribal coins from Eran, Ujjain and Kausambi. Shri S. M. Misra of Chandausi presented to the Museum some Panchala coins.

27. ARCHAEOLOGICAL MUSEUM, SANCHI.—Some interesting sculptures from the reserve-collection were sorted out and displayed in the galleries. The larger antiquities of Museum were re-arranged on suitably-designed pedestals. Old wooden pedestals were given a teak-ply veneering.

28. TIPU SULTAN MUSEUM, SERINGAPATAM.—Two prints, one showing Seringapatam and the other Tipu Sultan's sons as hostages, were received as gifts from the Public Library, Bangalore. In addition, eight antiquities, such as arms and coins, falling within the scope of this Museum, were transferred here from the Fort St. George Museum, Madras.

29. ARCHAEOLOGICAL MUSEUM, TRICHUR.—Sculptures of Jaina saints of about the eleventh century, from a ruined temple in Alathur, Palghat District, were added to the collection. Some inscriptions on granite slabs in Vatteluttu script, from Alathur and Kozhikode, were also acquired.

30. BHARAT KALA BHAVAN, VARANASI.—Among the new acquisitions, mention may be made of forty terracottas, mostly from Mathura and Ahichchhatra, fourteen stone sculptures, mostly from the former place, fiftythree beads, a bronze image and a terracotta seal representing a seated lion with a Brahmi legend below. The display of Mathura and Gandhara sculptures received special attention. Some select terracottas and Mathura and Gandhara sculptures received special attention. Terracottas and clay seals, mostly from Rajghat, were displayed with appropriate labelling. An image of Vishnu in the Vamana incarnation, of the Pala period, was one of the outstanding acquisitions.

VII. ARCHITECTURAL SURVEY OF TEMPLES

1. NORTHERN REGION.—The Northern Region of the Temple-survey Project of the Survey, under Shri Krishna Deva, surveyed the Kachchhapaghata temples at Bihar-Kotra in District Rajgarh, and Padhaoli, Mitaoli and Suhaniya in District Morena, Madhya Pradesh. The temple in the *gadhi* at Padhaoli (pl. CLXII) is a fragmentary shell of a large temple-complex with ornate pillars and rich sculptural friezes representing Saiva and Vaishnava myths and stories from the *Ramayana* and *Bhagavata.* The Kakan-marh temple at Suhaniya (pl. CLXIII) is a magnificent conception comparable in grandeur and dimensions to the Kandariya-Mahadeva temple at Khajuraho and embellished with equally bold sculptural ornaments. This *sandhara* temple, measuring roughly 30 m. in length and height, stands on an enormous *jagati.* Unfortunately, the roofs of its *sikhara* and *maha-mandapa* show only the hearting-courses, bereft of the face-stones. The circular Siva temple at Mitaoli, known as the Ekottarsau-Mahadeva temple was also surveyed together with the large group of neighbouring Pratihara temples, now over-run by the forest at Batesara. Some of the Batesara temples are comparable in style and date with those at Naresar and are similarly *tri-ratha* on plan and design with a squat *sikhara* of three *bhumis* and a constricted *antarala* with a *sukanasika,* revealing a prepon-derance of the Lakulisa cult.

The medieval temples of Mandasor District, also in Madhya Pradesh, reveal a peculiar amalgam of Paramara and Kachchhapaghata traits with an admixture of Rajas-thani elements. The rock-cut Dharmarajesvara temple at Dhamnar in that District shows strong Rajasthani influence in its general lay-out and design of the *mandapa-roof.*

A photographic documentation was made of the important group of temples at Mukhalingam in District Srikakulam Andhra Pradesh, which bear strong affinities to the early Orissan temples. The most significant building of the group is the Somesvara temple (pl. CLXIV), which, with its *tri-ratha* plan and design, is a close analogue of the Parasuramesvara temple at Bhubaneswar but more strikingly resembles the Vaital-Deul and Sisiresvara temples of the same place in the crisp rendering of the decorative carvings.

An opportunity was also taken of making a brief survey of the temples of Avantipur, Payar, Martand, Pandrethan and Patan in the Kashmir valley.. The larger of these temples are characterized by a courtyard enclosing a colonnaded peristyle with the principal shrine in the middle surmounted by a pitched pyramidal roof and reveal many features derived from Gandhara architecture.

2. SOUTHERN REGION.—The architectural survey of temples in south India was continued by the Southern Region of the Temple-survey Project of the Survey, under Shri K. R. Srinivasan.

Since the inception of the Project about three hundred temples or their remains in different Districts of south India, ranging in date between the fifth and tenth centuries, were surveyed and field-notes drawn for purposes of comparative study and compila-tion of monographs based on dynastic and regional criteria. They include about a dozen excavated brick temples at Nagarjunakonda, some early brick temples at Ter, Chejerla and Narasamangala, one hundred and fiftyfive cave-temples, fourteen

Monolithic temples and about eighty structural temples, all falling within this period, the rest being of later dates surveyed for purposes of comparison. The main dynasties, among others, represented by these temples are Early Chalukya, Pallava, Early Pandya, Eastern Chalukya, Rashtrakuta, Telugu-Choda, Muttaraiyar, Ganga and Early Chola.

The earliest extant monolithic or structural temples of the times of the early Chalukya-Rashtrakutas and Pallava-Pandyas though from common brick-and-derived timber prototypes, have distinctive regional variations indicated by the divergent shapes of pillars, corbels, door-frames, etc. Their main vertical components are essentially alike, the characteristic feature being the successive receding *tolas* in the multi-storeyed *vimanas,* the top of each *tala* being fringed by a string *(hara)* of miniature shrines, comprising *kutas, salas* and *panjaras* or *nidas,* the last coming at a slightly later stage. The temple-complexes show also essentially similar horizontal components, such as *mandapa,* enclosure-wall, cloister or *parivara* shrines and *gopura.* In the earlier Chalukyan and Pallava examples the *hara* on top of the first *tala* of the *vimana* extends over the edge of the roof of the *ardha-mandapa* or *antarala* and often the *maha-mandapa* where one is present (pi. CLXV A). While this becomes the common feature in the derivatives of the southern Chalukyan *vimanas,* the later Pallava temples and their derivatives have the *hara* confined to the *vimana* only, with such rare exceptions as the Darasuram temple of the later Chola period. Again, in the earlier examples of both the Pallava and Chalukyan series, the topmost *tala* has a *hara,* surrounding the *griva* and *sikhara,* the components of which are *kutas* or *salas* or both. While in the Pallava examples these *kutas* and *salas* rise only to the height of the *griva*, in the Chalukyan examples they are much taller so that they surround the *griva* and a large part of the *sikhara* and are often set close to them as in the temples of Badami and Mahakuteswar (pl. CLXV B). After about A. D. 700, as noticed in the Shore temple at Mahabalipuram (pl. CLXCI A), the Kailasanatha at Kanchipuram (pl. CLXVI B),the Vettuvan-kovil at Kalugumalai (1958-59, pl. LXXXVIII B) and the Kailasa at Ellora (pl.CLXVII A), the topmost *tala* ceases to have such a *hara* but carries at its four corners the *vahana* or *lanchhana* appropriate to the deity enshrined in the *vimana*, such as *nandis, bhutas,* etc. Thus, these temples conform to the prescriptions of *the Silpa*- and *Agama-texts,* indicating incidentally a date for the texts concerned. The early Chalukyan temples of the southern and northern styles have, almost from the outset, a *sukanasika,* an exception being the Sangamesvara temple at Patadkal, the earliest of the three southern style temples there, inspired by the Pallava examples at Kanchipuram. If the absence of *sukanasika* in the Sangamesvara *(circa* 725) and its presence in the two later ones, Virupaksha and Mallikarjuna built between 745 and 984 (pl. CLXVII B), are any indication, the Badami and Mahakuteswar temples would be the earliest of the series. The Pallava examples and their subsequent derivatives, on the other hand, lack the *sukanasika*. There is, however, a semblance of *sukanasika* in the great Chola temples at Thanjavur and Gangaikondacholapuram. In both the projecting gargoyle-like water-outlet or *pranala* on the top of the *adhishthana,* with its chute in level with the floor of the *garbha-griha,* is absent as a rule in the earlier examples. The projecting *pranala* becomes a constant feature in the later temples of both the series and its emergence, therefore, in each region is of chronological significance. The Durga temple at Aihole has, among other late features, an original *pranala* on the prescribed northern side.

As a result of the simultaneous study of the related sculpture and iconography, it has been found that the sculptural contents of the temples, their iconography and disposition in specified parts or directions also afford clues to classification and dating.

3. GUJARAT.—Shri J. M. Nanavati and M. A. Dhaky of the State Department of Archaeology undertook a survey of the following temples in Gujarat : (1) Maitraka period: Varaha temple at Kadvar, Sun temples at Akhodar, Pasnavara and Sutrapara and temples at Balej, Bhansara, Khimeswar, Ranavav, Bileshwar, Sonkansari and Visavadar; (2) Saindhava period: temples at Ghumli, Maini and Shamalaji: (3) Chaulukya period: temples and other monuments at Modhera, Kumbharia, Patan, Sidhpur, Dabhoi, Pavagarh and Khedbrahma; and (4) post-Chaulukya period: temples at Idar, Shamalaji and Polo.

Plans of thirtyfive Maitraka and Saindhava temples were prepared for comparative stylistic studies. A survey of ancient wooden architecture was undertaken at Idar, Khambhat, Broach, Sidhpur and Patan.

VIII. ARCHAEOLOGICAL ATLAS

The Archaeological Atlas Project of the Survey registered further progress (1960-61, p. 78) under Shri Ballabh Saran.

In consonance with the recommendations of the Committee on Prehistoric Nomenclature (above, p. [iii]), the data for the maps relating to the Stone Ages were suitably re-arranged so as to fall within three maps, respectively illustrating the Early, Middle and Late Stone Ages. The sites relating to the last Age were divided into those without and with pottery.

A map showing the finds of copper implements of different types, of non-chalcolithic affiliation, was under preparation. Another important map would be showing the principal forts or fortified towns.

In the course of the preparation of the maps, many statements and generalizations about the distribution of certain classes of antiquities were found ill-grounded and based on lack of geographical scrutiny.

District maps were also planned, and the one of Chingleput District was taken up.

IX. PRESERVATION OF MONUMENTS

MONUMENTS OF NATIONAL IMPORTANCE

CENTRAL CIRCLE

Madhya Pradesh

1. KOTESVARA-MAHADEVA TEMPLE, KASHITOLA, DISTRICT BALAGHAT.—The worn-out and damaged concrete floor was re-laid with lime and concrete of brick-bats.

2. OLD FORT, LANJI, DISTRICT BALAGHAT.—Approach-roads were reconditioned by the spread of *morum* and provision of kerb-stones.

3. FORT, KHEDLA, DISTRICT BETUL.—The damaged portion of the Kamani gate was underpinned in lime-mortar. The approach-roads were reconditioned and rank vegetation was cleared.

4. FORT, ATER, DISTRICT BHIND.—Jungle-growth and debris were removed from the area adjoining the tomb and king's palace.

5. FORT, MARIADOH, DISTRICT DAMOH.—Extensive clearance of vegetation was undertaken. The approach-path was widened and repaired after the removal of debris.

6. ROCK-CUT CAVES, BAGH, DISTRICT DHAR.—Debris was removed from the precincts of Cave 2 and the top of Cave 4. Some temporary masonry-pillars were erected to prop up the roof of Cave 4 for the extensive work of grouting and concreting on the top of the cave. Further work is in progress. The entire group of caves was fenced off with barbed wire.

7. BHOJA-SALA AND KAMAL MAULA'S MOSQUE, DHAR.—A broken Sanskrit inscrip tion found in the course of replacement of the damaged masonry of the *mihrab* was fixed on the wall near the entrance. The precincts of the monument were cleared of all jungle-growth.

8. LAT-KI-MASJID, DHAR.—The cracks in the masonry were filled in and the joints in the masonry of the walls pointed. The cracks in the ceiling were grouted with liquid lime-mortar.

9. GROUP OF MONUMENTS, MANDU, DISTRICT DHAR.—Besides extensive jungle-clearance and repairs to the approach-roads leading to individual monuments, special attention was paid to Jahaz-Mahal and royal palaces built by Ghiyathu'd-Din Khalji by the provision of fresh lime-concrete on the floors. *Morum* mixed with boulders was consolidated in the quadrangle of Asharfi-Mahal for a proper gradient for discharge of rain-water.

10. JAL-MAHAL PALACE, SADALPUR, DISTRICT DHAR.—Fresh lime-concrete was re-laid on the damaged floor of the annexe built across the bed of a stream.

11. GROUP OF MONUMENTS, CHANDERI, DISTRICT GUNA.—Debris was removed from the Jami'-Masjid and the monuments cleared of all jungle-growth.

12. KOSHAK-MAHAL, CHANDERI, DISTRICT GUNA.—The central facade of the palace which had bulged-out was taken up for the repairs and the portion over the central arch dismantled and re-set in position. The work is in progress. Barbed-wire fencing was provided all round the monument.

13. GROUP OF MONUMENTS, FORT, GWALIOR.—The flooring in the courtyard of the palace of Man Singh was restored with new flagstones. The damaged tilework were suitably strengthened by peripheral edging. The flooring of the outhouses was also improved. The damaged carved stone-benches in the smaller Sas-bahu temple were re placed by new carved stone-benches matching their original character.

In order to afford a clearer view of the Jaina colossi, debris was cleared from the precincts of the Urwai gate to the fort. The platform in front of images 1 to 3 was provided with lime-concrete flooring.

14. CAVES AND ROCK-SHELTERS, PACHMARHI, DISTRICT HOSHANGABAD.—The group of monuments was attended to by thorough jungle-clearance and reconditioning of approach-roads. Silt was also removed from the top of the Pandava Caves.

15. CHAUSATH-YOGINI TEMPLE, BHERAGHAT, DISTRICT JABALPUR.—The pathway leading to the main entrance from the flight of steps was reconditioned by providing dry-stone pitching and spreading *morum* over the surface. Loose sculptures scattered inside the temple were arranged properly.

16. KANKALI AND DURGA TEMPLES, TEGOWA, DISTRICT JABALPUR.—The roofs of the temples were rendered watertight and all rank vegetation was removed.

17. ROCK-CUT TEMPLE, DHAMNAR, DISTRICT MANDASOR.—The temple, hewn out of laterite, had developed several large fissures due to the porous nature of the material. The cracks were filled with cement-concrete matching the adjoining surface. The work is in progress. A barbed-wire fencing was also provided to demarcate the area of caves.

18. NAVA-TORANA TEMPLE, KHOR, DISTRICT MANDASOR.—All jungle-growth was cleared and broken stone pillars were replaced.

19. BEGAM-MAHAL, CHOGAN, DISTRICT MANDLA.—The decayed concrete of terrace was raked out and re-laid with fresh lime-concrete. All rank vegetation was also removed.

20. SIVA TEMPLE, NARESAR, DISTRICT MORENA.—The dilapidated facing-stones of the temple were re-set in position and debris removed.

21. GROUP OF MONUMENTS, BURHANPUR, DISTRICT NIMAR EAST.—The exterior and interior walls of Ahu-khana were plastered with lime-mortar similar to the original. The Naqqar-khana of the tomb of Shah Shuja was attended to by way of plastering the interior and providing wire-gauzed steel frames to the windows. The construction of a retaining-wall was commenced to save the tomb of Shah Nawaz Khan from the scouring action of the river; the work is in progress, The decayed and damaged stones of the pavement of the courtyard of Bibi Saheb's mosque were removed and new flagstones fixed. The garden attached to the monument was improved.

The exterior walls of the two pavilions of Mahal-Gulara situated on either bank of the river were replastered matching the original character of the plaster in colour and texture.

22. SIDDHESVARA TEMPLE, MANDHATA, DISTRICT NIMAR EAST.—The collapsed compound-wall was rebuilt in rubble-masonry in mud-mortar.

23. FORT, RAISEN.—A new approach-road was provided from the main road to the southern part of the fort. The precincts were cleared of all jungle-growth. Missing doors of the Itardan and Kachehri were replaced.

24. GROUP OF MONUMENTS, SANCHI, DISTRICT RAISEN.—Approach-road from Monastery 51 to Stupa 2 was laid with flagstones. A barbed-wire fencing was erected to demarcate the boundary of parts of the monuments.

25. FORT, KHIMLASA, DISTRICT SAGAR.—The tops of walls over the second gate were rendered watertight. The thick growth of vegetation was removed from all the monuments in the fort.

26. TEMPLE, ASHTA, DISTRICT SEONI.—Debris was removed from the temple-area and loose stones, some of them carved, were stacked properly.

27. GROUP OF MONUMENTS, GYARASPUR, DISTRICT VIDISHA.—The approach-road to the monuments was provided with stone kerbing and reconditioned by a spread of *morum.*

28. ROCK-CUT CAVES, UDAIGIRI, DISTRICT VIDISHA.--The approach-road was provided with stone kerbing and the precincts were cleared of all jungle-growth.

Maharashtra

29. FORT, NARNALA, DISTRICT AKOLA.—The approach-paths were maintained properly by morum-spread. All the gates were cleared of rank vegetation.

30. MAHADEVA TEMPLE, GHOGRA, DISTRICT NAGPUR.—The dislodged portion of the temple-masonry was re-set and the precincts cleared of all debris.

Rajasthan

31. OLD TEMPLE, DARA, DISTRICT KOTAH.—The loose masonry was re-set and the joints treated with recess-pointing. The loose sculptures were arranged at a suitable place.

32. KARNESVARA TEMPLE, KANSWA, DISTRICT KOTAH.—The bulged-out masonry was dismantled and re-set in lime-mortar. The plinth of the temple was underpinned and the damaged *chhajja-stones* were replaced.

EASTERN CIRCLE

Assam

33. DEVIDOL, GAURISAGAR, DISTRICT SIBSAGAR.—Missing brick cornices were mended with special tiles. Large-scale eradication of vegetation and repairing of the damages including recess-pointing were resorted to in the ornamental facades. The holes in the masonry were plugged with gravity-grouting.

34. SIBDOL, GAURISAGAR, DISTRICT SIBSAGAR.—The dilapidated lower subsidiary *sikharas* were repaired along with the decayed cornices with specially-made tiles reproducing beads and strings. Missing brickwork below the cornice was made good with special newly-made bricks and the joints on the surface filled in with mortar up to the level of the cornice. The surface of the spire was made watertight by a fresh coat of toned plaster. General clearance and levelling of the compound exposed the alignment of the ancient compound-wall.

35. VISHNUDOL, GAURISAGAR, DISTRICT SIBSAGAR.—Repairs were undertaken to the *mandapa* by way of the underpinning of the missing and overhanging portions, filling in of the open joints and replacement of decayed bricks.

36. KARENGHAR PALACE, JAYSAGAR, DISTRICT SIBSAGAR.—The pitted and dis integrated concrete flooring was renewed with fresh lime-concrete.

37. SIVA TEMPLE, NEGHERETING, DISTRICT SIBSAGAR.—The *mandapa* attached to this temple was repaired by the re-laying of lime-concrete terracing after the grouting of the cracks, plastering of the ceiling and renewal of the doors. The keystone of the main temple was repaired by the grouting and filling in of open joints.

38. SIBDOL, SIBSAGAR.—The special repairs to this temple were continued (1960-61, p. 80). The moulded and fluted surface at the south-eastern side and the facade on the southern side were strengthened by the replacement of the unserviceable stones with new ones. The niche-figures, which had been dislodged, broken and loose, were removed, mended and firmly re-set in position in fresh mortar. The surface ashlar-courses were replaced and bonded with copper dowels and clamps. The inner core was made water proof with fresh toned mortar. The lower mouldings with the pillars, wherever missing, were renewed.

Orissa

39. BUDDHIST REMAINS, RATNAGIRI, DISTRICT CUTTACK.—Some of the minor *stupas* lying around the main *stupa* had been treated earlier (1960-61, p. 81). The rest, numbering more than thirty, were thoroughly conserved by the rebuilding of the loose brickwork and masonry as the case was, restoration of the missing bricks and stones, reproduction of the mouldings and grouting of the core.

The damaged ashlar-facing of the northern flanks of the eastern and western walls and part of the northern wall was restored. The cells of the northern flank of Monastery 1 were made good by the renewal of the decayed brickwork, the facing-bricks being chiselled and smoothened as in the original. All the stones pertaining to the facade of the later phase of the shrine of Monastery 1 had been found dislocated amidst debris on the courtyard. The carved pieces were re-assembled and re-erected on the courtyard after the reproduction of the missing parts.

40. GROUP OF TEMPLES, BHUBANESWAR, DISTRICT PURL—TWO of the temples within the compound of the Lingaraja temple, viz. Ganesa and Vamana, were thoroughly conserved by the re-setting of the dislocated masonry and grouting of the cavities in the core.

41. SUN TEMPLE, KONARAK, DISTRICT PURI.—In continuation of the earlier work (1960-61, p. 82), two hundred and fortytwo holes, which were drilled in the foundation-plinth, were grouted with liquid cement mixed with sand and ironite. The heaps of sand in front of the eastern gate were cleared and the slopes stabilized by stone pitching. Pockets in the platform along the main temple and the *jagamohana* were filled in with stone to arrest the stagnation of water.

Tripura

42. BHUVANESVARI TEMPLE, UDAIPUR.—In continuation of the special repairs (1960-61, p. 82) in progress, the large pits exposing the eastern and northern sides of the plinth of the temple were filled in with earth. The pitching was retained by strutting

of bamboos. The salt-affected bricks of the temple were replaced with old bricks. **The** damaged floor of the temple was renewed.

43. CHATURDASA-DEVATA GROUP OF TEMPLES, UDAIPUR.—The badly-damaged southern flank of the compound-wall was restored in new brickwork. The corner pilaster of the Lakshmi-Narayana temple was made good.

44. GUNAVATI GROUP OF TEMPLES, UDAIPUR.—The damaged floors of the temples were renewed by laying lime-concrete. The damaged brickwork in the eastern temple was replaced.

West Bengal

45. GROUP OF TEMPLES, VISHNUPUR,. DISTRICT BANKURA.—The Madana-Mohana temple was attended to by the renewal of the entire terracing on the top of the damaged plinth of the temple and gate, making of the exposed wall-tops of the *kirtana-sala* water tight, laying of *lime-surkhi* plaster on the vertical sides of the gate and of *surkhi*-plaster on the top of the *sikhara,* laying of lime-concrete on the top of and plastering of the sides of the *Tulasi-mancha.* In the *Rasa-mancha* the fallen pillars, a portion of the stepped roof and some of the arches along with their haunches were rebuilt with special-sized bricks. The newly-constructed roof was made watertight by *lime-surkhi* plaster.

46. JAYADEVA TEMPLE, KENDULI, DISTRICT BIRBHUM.—As the annual stagnation of water by the side of the temple-plinth due to the floods in the adjoining Ajay river was considered dangerous to the safety of the main walls of the temple, protective measures were undertaken to safeguard the foundation of the temple. Retaining-walls were constructed all around the lower plinth. The intervening space between the new retaining-wall and the old plinth will be made watertight to arrest the percolation of rain-water.

47. GROUP OF MONUMENTS, GOUR, DISTRICT MALDA.—The salt-affected and decayed bricks of the Chamkati mosque were replaced and the overhanging brickwork was underpinned. The Tantipara mosque was attended to by the replacement of decayed and salt-affected bricks, reproducing the ornamental work, re-setting of the loose ornamental bricks in their original position and making of the top of the bastion watertight with fresh lime-concrete. A portion of the collapsed arched roof of the Dakhil-Darwaza was restored. In the Chika mosque, the salt-affected and decayed bricks were replaced and the brickwork underpinned. The gateway of the Qadam-Rasul mosque was attended to by the restoration of the missing wedge-shaped bricks of the ceiling and renewal of the plaster. The missing brickwork including ornamental work was restored in the Gumti gate. The spongy floor of the Sona mosque was removed and a fresh layer of lime-concrete laid. Special repairs to the Lotan mosque consisted of the removal of decayed bricks, filling in of cracks, reproduction of ornamental brickwork of the cornice and making of the top of the wall watertight by lime-concrete. The collapsed portions of the Bais-gazi wall were restored and its top and sides made watertight.

48. GROUP OF MONUMENTS, PANDUA, DISTRICT MALDA.—The floor of the Sona mosque was renewed with lime-concrete. The Eklakhi mosque was conserved by the removal of salt-affected bricks, underpinning of overhanging brickwork, reproduction of ornamental brickwork, grouting of cracks and plastering of the domes in patches. A portion of the floor of the Adina mosque was re-laid with concrete.

49. BHAVANISVARA TEMPLE, BARANAGAR, DISTRICT MURSHIDABAD—The reproduction of the cornice-moulding and floral designs in stucco was continued (1960-61, p. 83).

50. CHAR-BANGLA GROUP OF TEMPLES, BARANAGAR, DISTRICT MURSHIDABAD.—The plinth of the platforms of the temples was strengthened by making the adjoining area watertight. Foot-paths were aligned with bricks-on-edge, giving necessary outlets to arrest the stagnation of water around the plinth.

51. TOMB AND MOSQUE OF MURSHID QULI KHAN, KATRA, DISTRICT MURSHIDABAD.—The area acquired around the monument (1960-61, p. 83) was levelled and dressed with a proper slope. Three of the *katras were* thoroughly conserved by the rebuilding of the damaged portions, arches, squinches and domes. General clearance of rank vegetation from structures was attended to.

52. TOMB AND MOSQUE OF SHUJAU'D-DIN, ROSHNIBAG, DISTRICT MURSHIDABAD.—The platform around the mausoleum was conserved by the laying of fresh lime-concrete on its top and plastering its side.

FRONTIER CIRCLE

Jammu and Kashmir

53. MUGHAL ARCADE, VERINAG, DISTRICT ANANTNAG.—Further work was resumed (1960-61, p. 83) and the decayed brick structures and the arches were restored. The work is in progress.

54. TOMB OF ZAINU'L-ABIDIN'S MOTHER, SRINAGAR.—In continuation of last year's work (1960-61, p. 84) the moulded courses of the plinth were replaced. Repairs to the domes and the arches are in progress.

MID-EASTERN CIRCLE

Bihar

55. STUPA 1, LAURIYA-NANDANGARH, DISTRICT CHAMPARAN.—The monument wa6 repaired by way of underpinning, rendering watertight and removal of jungle-growth.

56. EXCAVATED STUPA, BASARH, DISTRICT MUZAFFARPUR.—The exposed structure was rendered watertight.

57. EXCAVATED REMAINS, KUMRAHAR, DISTRICT PATNA.—The water stagnating in the low-lying portion of the pillared hall was pumped out to expose the pillars *in situ*. The site was maintained in a neat and tidy condition: a general clearance was undertaken and *morum* was spread on pathways.

58. EXCAVATED REMAINS, NALANDA, DISTRICT PATNA.—Salt-affected bricks were removed and replaced by new ones, lime-concrete pathways were extended and the bare tops of walls were made watertight. The collapsed part of the brickwork of the vaulted chamber in Monastery Site 1 was restored. The two walls of the platform belonging to the three phases of flooring in the same, which had collapsed during rains, were properly restored with toned lime-concrete.

59. GROUP OF MONUMENTS, RAJGIR, DISTRICT PATNA.—Some of the monuments were made watertight. Thorough jungle-clearance was also undertaken in the Old and New Fort areas.

60. FORT AND GATEWAYS, ROHTAS, DISTRICT SHAHABAD.—Lime-concrete floor was repaired and the approach-roads were maintained properly.

61. HASAN SUR SHAH'S TOMB, SASARAM, DISTRICT SHAHABAD.—-Lime-concrete flooring was laid in the main tomb. The ceiling of the verandah of the tomb was treated with colourwash in order to remove all ugly stains.

62. SHER SHAH'S TOMB, SASARAM, DISTRICT SHAHABAD.—The main dome was grouted with liquid cement-mortar. Brick-aprons were removed and replaced by flag stones with recessed pointing.

Uttar Pradesh

63. LORD CORNWALLIS' TOMB, GHAZIPUR, .—The marble cenotaph and floor were cleaned of all stains. The damaged portions of brickwork was made good in lime-mortar. Approach-roads were maintained properly.

64. GOMATI BRIDGE, JAUNPUR.—Decayed lime-plaster was made good by the laying of new lime-plaster mixed with cement. Door-shutters were provided in some of the arches of the *dalans.*

65. JHANJHRI-MASJID, JAUNPUR.—A *kankar-lime* concrete apron was laid around the mosque. A lightning-conductor was fixed at the monument.

66. KHALIS-MUKHLIS OR CHAR-UNGLI-MASJID, JAUNPUR.—In addition to the installation of a lightning-conductor at this monument, a lime-concrete apron was provided around the mosque.

67. OLD FORT, JAUNPUR.—The approach-roads were metalled with *kankar* and the undermined portions of the brickwork were underpinned with bricks in *kankar-lime.*

68. RAUZA OF SHAH FIRUZ, JAUNPUR.—The monument was provided with a lightning-conductor.

69. TOMB OF LAL KHAN, RAJGHAT, DISTRICT VARANASI.—Large-scale clearance of the entire site was undertaken. Patch repairs to the plaster inside the tomb were carried out with *kankar-lime.*

70. EXCAVATED REMAINS, SARNATH, DISTRICT VARANASI.—The site was cleared of all debris. The exposed tops of the structural remains were made watertight. Lime-concrete was laid over the entire *pradakshina-patha* around the Dhamekh Stupa. Historical notice-boards were also provided.

71. DHARARA-MASJID, VARANASI.—Cracks which had appeared on the super structure and roof were filled in and tell-tales provided to watch further movement. Pits dug for examining the foundation were filled in and the surface made watertight. Cracks on the domes were also filled in.

NORTHERN CIRCLE

Madhya Pradesh

72. PARVATI TEMPLE, NACHNA, DISTRICT PANNA.—The monument received special attention. The bulged plinth was dismantled and reconstructed in proper plumb; the tops of walls were made watertight. The modern construction in front of the *garbha-griha* was removed and the steps were reconstructed. The work of providing stone flooring along the *pradakshina-patha* is in progress. In the course of the work it was observed that, unlike the two other Gupta temples at Deogarh and Bhumara, not far away from

this site, the stone blocks here are not held together by iron clamps. It was also observed that this temple had two subsidiary shrines flanking the walls, as at Deogarh.

Rajasthan

73. PALACES, DIG, DISTRICT BHARATPUR.—Removal of vegetation and pointing of open joints were among the items of repairs carried out to the monuments.

Uttar Pradesh

74. FORT, AGRA.—Extensive repairs were carried out in the fort at Agra. The broken *chhajja-stones* of the Diwan-i-'Am were replaced by new ones (pl. CLXVIII) and the exfoliated carved panels of the plinth restored. The Jahangiri-Mahal received special attention by way of the replacement of damaged veneer-stones and door-jambs. The pillars in the Zanana-Khana were repaired and the walls replastered. The Amar Singh gate and the screen-walls on either side of the ramp were repaired by the under pinning of the brickwork and pointing the joints. The open joints in the brick-on-edge pavement in front of the Diwan-i-'Am were pointed after the removal of vegetation.

The marblework in the Diwan-i-Khas, Khass-Mahal and Moti-Masjid were thoroughly cleaned and the sandstone facade, *chhajjas* and *chhattris* relieved of the growth of moss and lichen in all the important buildings in the fort.

75. 'IDGAH, AGRA.—The conservation of this monument consisted of the filling of the joints with *kankar-lime* and underpinning of the enclosure-walls on the north and south.

76. I'TIMADU'D-DAULA'S TOMB, AGRA.—The joints of the marble veneering of the kiosks crowning the corner-towers of the mausoleum were pointed with special lime-mortar, and the dislodged decorative stones, such as the *kanguras, kalsi* and *guldastas,* in the principal entrance and the false gate on the south side were re-set. The southern enclosure-wall was underpinned. The replacing of missing and damaged inlay-pieces on the exterior of the mausoleum was kept in progress. Doors and alcoves were re painted on original lines and moss and lichen removed from the outer surface of the main building.

77. TAJ-MAHAL, AGRA.—The north-west corner of the Taj-Mahal was taken up for repairs in accordance with the recommendations of the Taj Advisory Committee. The iron dowels used in the construction.had rusted and damaged the marble slabs of the veneer and the decay had been hastened further owing to the inferior quality of the marble. The cracked and decayed slabs were replaced by new ones (pl. CLXIX). The restoration of the broken *chhajjas* and railing in all the three storeys was undertaken and the exfoliated red sandstone blocks in the interior were replaced by new ones. The missing inlay-pieces in black marble were replaced by similar ones in Alwar marble and the loose ones were re-set after the grouting of the crevices. The worn-out plaster of the soffit of the crowning *chhatri* was attended to and the exposed joints pointed.

Other items of repair to the monument consisted of the replacement of the missing and broken slabs of the Chameli-Fash by new ones, pavement around the main gate and footpaths flanking the channels. The damaged panels of the plinth of the main entrance-gate were replaced by new carved panels and the plaster on the border of the frontal apses of the gate was renewed.

A thorough cleaning of the marble and red sandstone used in the various architectural members of the complex, including the screen around the cenotaphs, was undertaken in accordance with the suggestions by the Archaeological Chemist.

78. GROUP OF MONUMENTS, FATEHPUR-SIKRI, DISTRICT AGRA.—An old tank exposed behind the Diwan-i-'Am during repairs to the site of old garden attached to the house of Turkish Sultana was restored on original lines. The water-channels were also repaired by the replacement of the missing red sandstone blocks.

A new road, to replace the old *kankar* road, was laid to give a proper shape to the newly-laid garden. Fresh concrete was laid to recondition the floor of the stable. The niches in the summer palaces of Jodha-Bai were restored to their former shape. The Anup tank, Diwan-i-'Am, library, Hakim's house, Maryam's house, Baland-Darwaza, Panch-Mahal and a portion of Jodha-Bai's palace were repaired by the replacement of damaged pavement-stones and other architectural members.

79. AKBAR'S TOMB, SIKANDARA, DISTRICT AGRA.—Decayed and exfoliated stones of the southern pathway and its central tank were replaced by new ones. The dislodged veneer-stones of the northern arcade in the first floor of the main tomb and the pavement of the pathway were re-set. New brackets were provided in place of the broken ones supporting the *chhajjas*. Niches in the principal entrance to the tomb and interior of the southern *dalan* of the ground floor were colourwashed to match the original after repairs to the salt-effected portion.

80. SUN TEMPLE, KATARMAL, DISTRICT ALMORA.—A large portion of the southern wall and the *vimana* of the Sun temple at Katarmal, which had collapsed owing to heavy rains and snow-fall during the last winter, were taken up for repairs. The bulged portions were taken down and repaired with original stones as far as possible. Suitable header-stones were provided to obtain proper bond between the outer and the inner ashlar-work and the top portion was made watertight with rubble in cement-mortar.

NORTH-WESTERN CIRCLE

Delhi

81. ADHAM KHAN'S TOMB, DELHI.—The bulged and raked masonry of the flight of steps leading to the tomb-platform was rebuilt and the joints of the masonry on the south filled in with concreted mortar. The south-eastern and eastern walls of the enclosure were repaired after the buried portions had been exposed and the bulged patches dismantled.

82. 'ADILABAD FORT, DELHI.—The fallen rubble-masonry core and the ashlar-masonry face of the southern inner fortification-wall were rebuilt and the battlements cleared of debris.

83. GROUP OF MONUMENTS, QUTAB, DELHI.—The lower portion of the fourth-century iron pillar in the courtyard of the Quwwatu'l-Islam mosque embedded in masonry was found to have superficially rusted. This was chemically treated (pl. CLXX) and re-set in masonry covered with a thick lead sheet. See also below, p. 143.

The uneven and pot-holed floor of the courtyard and the cloisters of Quwwatul-Islam mosque, including those of the second extension of Iltutmish, were re-set (pl. CLXXI B) with a proper slope for drainage. The remains of the southern enclosure-wall,

which had gone out of plumb, was rebuilt. The open plots of land to the north and south of the mosque were levelled, dressed and covered with a layer of *morum.*

An iron railing was provided on the top storey of the Qutb-Minar to prevent accidents and suicides and the doorways leading to the second and third storey balconies provided with iron door-shutters. The brick drains along the pathways which had outlived their utility were dismantled and the paths widened. The pathways were dressed and covered with a layer of *morum.* The fallen masonry of the rings of the Garhgaj (1960-61, p. 88) to the east of the Qutb were rebuilt up to the top and the joints pointed.

84. HAUZ-KHAS, DELHI.—The decayed lime-concrete flooring of the small *gumtis* were re-laid with fresh lime-cement concrete. The retaining-walls of the platform to the east of Firuz Shah Tughlaq' s tomb were rebuilt and the platform-top was provided with a layer of *morum.*

85. JAMI'-MASJID, DELHI.—In continuation of the work undertaken last year (1960-61, p. 38), the open joints and cracks in the north-east *minar* of the mosque were pointed and grouted with liquid cement mixed with *kankar-lime.* The decayed red sandstones were dismantled and replaced by new ones. The dislodged and bulged white marble stones on the *chhattri* of the *minar* were re-set and the white marble railing on the top storey refixed in its original place. The replacement of the damaged stones of the squinches including ornamental panels (pl. CLXXI A) of the main prayer-chamber is in progress.

86. KHIRKI-MASJID, DELHI.—The rubble patches on the northern gate of the mosque, which had fallen during the earthquake of 1960, were rebuilt.

87. RED FORT, DELHI.—A brass railing was provided around the marble throne in the Diwan-i-'Am. Some of the broken and worn out dasa-stones with ornamental friezes on the northern side of the same monument were replaced (pl. CLXXII); the replacement of the decayed ornamental red sandstone slabs on the floor and edges is in progress.

The exterior of the Rang-Mahal, Mumtaz-Mahal, Hammam and the Moti-Masjid was colourwashed and the outer face of the rear wall of the Diwan-i-'Am provided with two coats of dull-terracotta Snowcem.

A new path was laid along the southern edge of the Moti-Masjid and two viewing platforms provided on the northern and southern sides of the Hammam. The brick parapet-wall between the Mumtaz-Mahal and the Rang-Mahal and between the Shah-Burj and the Bhadon pavilion was repaired by the pointing of joints and raising of the top level of the latter. A layer of *morum* was spread over the roads and pathways. The renewal of *pietra dura* work in the Diwan-i-Khas is in progress.

88. TUGHLAKABAD FORT, DELHI.—The ramp from the main entrance to the citadel-area was consolidated; the steep gradient was eased by providing short flights of steps at suitable intervals and a low parapet-wall for safety provided on the left. Removal of debris, hiding the lower heights of the inner fortification-walls and bastions, is in progress.

89. 'ABDUR-RAHIM KHAN-I-KHANAN'S TOMB, NEW DELHI.—The basement-cells were provided with two iron-gates, one on the north and the other on the south and the dome provided with an iron chain for easier scaling for the removal of vegetation-growth.

90. AFSARWALA MOSQUE AND TOMB, NEW DELHI.—The concrete of the floor and dome of the mosque was re-laid after the removal of the dead concrete. Several fallen patches of rubble-masonry of the walls were rebuilt and the open joints pointed.

The plasterless portions of the interior walls of the tomb were replastered after the pointing of the open joints. The broken and dislodged veneer-stones of the tomb were replaced and refixed and fresh concrete laid on the top of the terrace in front of the tomb.

91. 'ARAB-SARAI GATEWAYS, NEW DELHI.—Broken patches of the parapet-wall over the west *dalan* of the northern gateway were repaired. Open joints in rubble walls, ceiling and floor of the gateways were pointed and the holes, hollows and cracks grouted. The decayed wooden gate was repaired and provided with a protective coat of paint. The worn-out and decayed wooden gate of the eastern gateway was replaced by a smaller iron gate.

92. BU-HALIMA'S TOMB, NEW DELHI.—Open joints of the rubble-masonry of the pillars and the floor of the *dalans* of the western gateway of the tomb were pointed. A wide and easy flight of steps was provided against the eastern face. The westernfacade, which had lost its plaster, was replastered to a height of 1 m. from the ground-level; the nature of the core of the original masonry was incidentally revealed. The wooden shutters of the gate were repaired and provided with a coat of protective dull-crown paint. The fallen rubble-masonry *kanguras* on the parapet-wall of the western compound-wall near the gateway were reconstructed and the later masonry on top of the eastern parapet-wall dismantled.

93. DARYA KHAN'S TOMB, NEW DELHI.—The broken masonry-patches in the walls and steps were rebuilt and the cavities and cracks in the walls and domes of the corner *chhattris* grouted and pointed. After dismantling the bulged-out platform of the main tomb, its wall was rebuilt in imitation of the old fabric. The renewal of the decayed concrete of the central grave and floors of the corner *chhattris* (1960-61, p. 89) was completed.

94. HUMAYUN'S TOMB, NEW DELHI.—The lower terrace of the tomb was provided with a completely new layer of plaster and lime-concrete, all toned to present an even textured surface. The replacement of missing moulded dasa-stones of the eastern wall of the lower terrace was commenced and the work is still in progress. The broken wooden railings around the staircase-approaches on the second terrace were replaced and painted. The external surfaces of the niches and arches of the basement as well as the ceiling and walls of the tomb were whitewashed or colourwashed as required. The sunken heavy stone edgings of the paths of the innermost square were re-set. The ancient tanks and water-channels were replastered to render them watertight and the surfaces of the path ways covered with a layer of *morum*. The open joints of the masonry of the enclosure-wall were pointed and the broken masonry of the cells rebuilt in patches (pl. CLXXIII). The ashlar-masonry of the western and southern gateways and their floors were pointed.

95. 'ISA KHAN'S TOMB AND MOSQUE, NEW DELHI.—The dwarf octagonal enclosure-wall around the tomb, which had almost completely fallen and the rebuilding of which had been taken up earlier on an experimental basis, was rebuilt. This involved the reconstruction of the rubble-core masonry including the *mutakkas* in lime-cement mortar and plastering of the surface.

The open joints of the outer compound-wall including the badly decayed-cells were pointed and the cells cleared of earlier debris. In several sections the missing masonry patches were rebuilt in rubble-masonry. Similar repairs were also undertaken at the mosque where the forecourt was also dressed. *Morum* was spread on the pathways.

96. JANTAR-MANTAR, NEW DELHI.—Iron wickct-gatcs were fixed at the entrance. The western compound-wall was re-aligned and straightened. All the *yantras* were given one coat of dull-terracotta colour. A new path with tile-brick work in cement-mortar was laid after the dismantling of the decayed and pot-holed pathway in front of the main entrance-gate up to the northern edge of the tank.

97. KHAIRU'L-MANAZIL MOSQUE, NEW DELHI.—The open joints in the masonry were pointed and the holes and hollows filled in to make them watertight. The decayed concrete of the floors replaced at several places with new lime-cement concrete.

98. KOTLA FIRUZ SHAH, NEW DELHI.—A row of cells exposed after the clearance of the debris to the north of the western entrance, were conserved by pointing and rebuilding of masonry where necessary. The broken masonry of the eastern wall was partly rebuilt with old and new stones. The roads and paths of the garden were provided with dry flat-brick edging and *morum* was spread over them. Filling up of the joints in the floor of the Jami'-Masjid to render it watertight is in progress.

99. SAFDARJANG'S TOMB, NEW DELHI.—The decayed concrete of the flooring of the corner *burjis* and the platform in front of the western *baradari* was renewed with fresh concrete. The four ancient water-tanks were plastered to render them watertight. The broken plaster of the basement-cells of the tomb proper were replastered and the open joints and cavities in the ceilings filled up. The external surfaces of the basement and the entrance gateway were colourewashed. The inner courtyard between the gateway and the mosque was provided with new rubble-stone floor. The wooden gate at the main entrance was given a coat of protective dull-brown paint. *Morum* was spread on all the pathways.

Himachal Pradesh

100. LAKSHMI-NARAYANA TEMPLE, CHAMBA.—The work of providing ashlar-masonry in the portions of the *sikhara* damaged by fire (1960-61, p. 90) was completed. A canopy, in replacement of the original one destroyed by fire, was provided over the *sikhara.*

Panjab

101. FORT, BHATTNDA.—The fallen portions of the lofty bastion supporting the Gurdwara was rebuilt (pl. CLXXIV) up to the level of the parapet-wall—the core in country-bricks in mud and the veneer in the same bricks in *kankar-lime.*

102. SURAJ-KUND, DISTRICT GURGAON.—The wide cracks in the landings of the tank to the north and south of the Gau-ghat were filled with concreted mortar. The open joints and cavities of the masonry were similarly filled up and fresh concrete laid in patches on the pavement wherever necessary.

103. JAHAZ-KOTHI, HISSAR.—After the removal of debris the uneven surface of the northern side of the monument was dressed.

104. FORT, KANGRA.—The ancient stepped pavement exposed last year (1960-61, p. 91) are being repaired and the missing portions rebuilt.

105. FORT, KOTLA, DISTRICT KANGRA.—Repairs to the stepped pavement by rebuilding the broken masonry of the steps and the retaining-walls are in progress. The entire pavement and the fortification-walls on the riverside as well as the other structures within the fort area were cleared of thick vegetation-growth.

106. FORT, NURPUR, DISTRICT KANGRA.—The walls and the bastions to the east of the southern entrance were cleared of vegetation.

Rajasthan

107. ABDULLAH KHAN'S TOMB AND BADSHAHI BUILDING, AJMER.—Lawns were laid around the monument and a pipe-line was provided for watering.

108. BAOLI, ABANERI, DISTRICT JAIPUR.—Fresh lime-concrete was laid on the ter race and the joints in the ashlar-steps in the western side pointed.

109. HARSHAD-MATA TEMPLE, ABANERI, DISTRICT JAIPUR.—The moulded and sculptured stones were collected and arranged in courses.

110. EXCAVATED SITE, SAMBHAR, DISTRICT JAIPUR.—Shallow channels were provided around the trenches for drainage. The excavated structures were cleared of vegetation growth.

111. FORT, RANTHAMBHOR, DISTRICT SAWAI-MADHOPUR.—Buried structures near the Badal-Mahal are being exposed, while cracks in the masonry were grouted with neat cement-mortar. The open joints of rubble-masonry of Battis-Khamba were pointed.

SOUTH-EASTERN-CIRCLE

Andhra Pradesh

112. RAMA'S BASTION, PENUKONDA, DISTRICT ANANTAPUR.—The fallen and missing dry-stone retaining-wall of the Rama's bastion was rebuilt with stones collected from the debris of adjacent ancient structures matching with the original. Further strengthen ing by way of grouting the cracks and pointing the joints of the wall is in progress.

113. LOWER FORT, CHANDRAGIRI, DISTRICT CHITTOOR.—The gateways and adja-cent fort-walls were cleared of rank vegetation. The fallen wall on the north side of the Gateway 2 was restored to its original condition by rebuilding with stones obtained from the debris of the fallen portions. The tops of walls of the fort-walls and their broken ends were secured and rendered wartertight.

114. MONUMENTS, CHANDRAGIRI, DISTRICT CHITTOOR.—The sunken dry-stone revetment of the Lotus tank opposite the Raja-Mahal was set right in patches in confor-mity with the old work. The entire outer surface of the revetment was grouted with cement-mortar after the uprooting of the rank vegetation from the structure. The water in the tank was baled out and the tank cleaned.

115. HILL-FORT, GURRAMKONDA, DISTRICT CHITTOOR.—Extensive clearance of vegetation over and around the gateways, the flanking fort-wall and the pathways was undertaken. A flight of steps was cut in the steep slippery rock between the third and fourth gateways on the slopes of the hill.

116. MAHAL, GURRAMKONDA, DISTRICT CHITTOOR.—Repairs to the doors, windows and ventilators were carried out by the replacement of all the missing and damaged wooden members. A few windows, devoid of iron bars, were provided with expanded-metal frames. The leaky sloping *chhajjas* in the second floor were repaired by a plastered layer of new flat tiles, The cracks in the walls and roofs were cleared of foreign matter

and filled with cement-concrete and cement-mortar and the top suitably plastered to match the old work.

117. NARASIMHASVAMI TEMPLE, GURRAMKONDA, DISTRICT CHITTOOR.—The broken and missing large-sized granite slabs of the roof of the *mandapa* were replaced and the roof rendered watertight.

118. CHENNAKESAVASVAMI TEMPLE, SOMPALLE, DISTRICT CHITTOOR.—The white and red colourwash disfiguring the pillars, mouldings and sculptured panels in the *mandapa* was partly removed by washing the surface with plain water and rubbing it with coir-brushes ; the work is in progress. The area around the temple on the exterior was dressed up and slopes provided to facilitate the drainage of rain-water.

119. ROCK-CUT CAVE-TEMPLE, UNDAVALLI, DISTRICT GUNTUR.—The approach-pathway and the open yard in front of the cave was repaired and dressed up. The ugly cement-plastering done in the past to the pillars and the passage in the second storey was removed carefully and the old architectural features and mouldings exposed to view. The crumbled and damaged pillars were reconstructed in masonry to match the old work. The square masonry pillars built in the part were chamfered at their centre to form octagonal shafts in conformity with the old style of the pillars.

120. FORT, GOLKONDA, DISTRICT HYDERABAD.—The partly-buried Naqqar-Khana was completely exposed to view by the removal of debris (pl. CLXXV). The broken and fallen walls of the Kilwat were strengthened and made watertight. The gateways of the outer fortifications, including the Fath-Darwaza and Musa-Burz, were cleared of all rank vegetation and strengthened by the underpinning of the masonry and rebuilding of the fallen portions. The tops of walls and bastions were rendered watertight. The gaping and open joints of the masonry were recess-pointed with coloured combination-mortar.

The area in the Nagina-Bagh was dressed up and gravelled pathways were provided. The surroundings were improved by turfing and raising of a few plants here and there. The work is in progress.

121. CHAR-MINAR, HYDERABAD.—The damaged floors of the first and second storeys were replaced by new ones of lime-cement. The damaged and peeled-off plaster over one of the *minors* was repaired with fresh plaster smoothened to match the original. The openings of the balconies in the *minors* were provided with dwarf curtain-walls and ./aft-work to afford safety to the public.

122. BUDDHIST REMAINS, GHANTASALA, DISTRICT KRISHNA.—After the uprooting of all vegetation and shrub-growth the approach-path was reconditioned. A brick compound-wall abutting the main road and the private houses was constructed and iron turnstile fixed at the approach.

123. BUDDHIST REMAINS, GUDIVADA, DISTRICT KRISHNA.—Being situated in the thickly-populated area, the site had been misused by the public and encroached upon. Encroachments were removed with the help of the local authorities and a portion of the precincts of the remains abutting the main road was provided with a brick compound-wall and a gateway.

124. AKKANNA-MADANNA CAVES, VIJAYAWADA, DISTRICT KRISHNA.—The open and gaping joints of the random-rubble compound-wall built in lime-and-mud in the past was grouted with concrete combination-mortar and plastered on its exterior surface. The existing wall was raised to prevent scaling over. A 3-m. wide gateway with iron-barred shutters and a reinforced concrete covering-slab on the front side was

for giving a proper access to the monument. The area in front of the lower cave was dressed up and levelled in the form of terraces to raise lawns, for which necessary water-facilities were provided with the help of the local Municipality.

125. MOGALRAJAPURAM ROCK-CUT CAVES, VIJAYAWADA, DISTRICT KRISHNA.—The disintegrated rock-cut pillar in Cave 2 was reconstructed (pl. CLXXVI) in reinforced concrete matching the old work in colour and texture.

126. FORT, WARANGAL.—The missing ashlar *dasa* and *kaksha* slabs of the Eka-sila temple were replaced by new ones to match the original. The missing stone-flooring in the *mandapa* was rectified with concrete in combination-mortar toned to match the ancient floor. The cracks in the roof of the *mandapa* were cleared of loose material, grouted with combination-mortar and rendered watertight.

The fallen and missing brick *sikhara* over the main shrine of Venkatesvara temple was cleared of debris and rendered watertight. The dislodged stone flooring in the *mandapa* was rectified and restored.

127. BUDDHIST REMAINS, GUNTAPALLE, DISTRICT WEST GODAVARI.—The ridge in the horseshoe-shaped ravine containing the traces of ancient structures like pillared *mandapas, chaityas* and *stupas* was cleared of thick jungle-growth and buried structures were exposed to view down to the ancient floor-level. A mound to the east of the area containing these *stupas* was cleared and a huge circular *stupa-chaitya* with sculptures of Buddha was exposed (above, p. 97). A stepped pathway was provided on the western side.

Madhya Pradesh

128. SIVA TEMPLE, DEOBALODA, DISTRICT DURG.—Lime-plastering over the walls of the *maha-mandapa* was removed and sculptured and moulded panels were exposed to view. All the open joints in the masonry of the *mandapa* and the plinth were recess-pointed.

The side-walls of the tank to the north of the shrine were restored by the rebuilding of the fallen and missing portions. A dry-stone revetment was provided over the top of old walls to prevent scouring of earth.

129. LAKSHMANA TEMPLE, SIRPUR, DISTRICT RAIPUR.—Approach-paths were reconditioned with gravel after the dressing of the adjacent area with suitable slopes for an easy disposal of rain-water. The dressed area was divided into terraces where lawns, shrubberies and hedges were planted.

130. RAMA TEMPLE, SIRPUR,' DISTRICT RAIPUR.—The heavy jungle-growth all round was cleared and approach-paths reconditioned. Debris was cleared from the precincts and structures to reveal the nature and extent of the old structure.

Maharashtra

131. MAHADEVA TEMPLE, ARMORI, DISTRICT CHANDA.—The work of providing dry-stone revetment over gravel-backing grouted with concreted mortar along the inner face of the tank, commenced last year (1960-61, p. 94), was completed. All cracks in the walls and roofs of the structure were grouted and rendered watertight and the site cleared (pl. CLXXVII).

132. FORT, BALAPUR, DISTRICT CHANDA.—The *chabutras* on either side of the path way to the west side of the fort leading to the Wardha river on the east were provided

with stone pitching and made watertight. The gaping joints of the fortification-wall towards the riverside were grouted and pointed.

The rear side-wall of the Rani-Mahal, under perpetual threat of scouring action by the river, is to be strengthened initially by a brushwood groyne along the inner slope of the river; the work is in progress (pl. CLXXVII1).

133. FORT, BHANDAK, DISTRICT CHANDA.—The fallen portions both on the interior and exterior faces of the fort-wall were rebuilt and some portions of the tops of walls were rendered watertight.

134. MAHADEVA TEMPLE, THANEGAON, DISTRICT CHANDA—An extensive clearance of vegetation over and around the structure was undertaken. The *sikhara* and the superstructure of the main shrine and *mandapa* were recess-pointed after the grouting of cracks and gaping joints.

SOUTHERN CIRCLE

Kerala

135. FORT ST. ANGELO, CANNANORE.—The main gate of the fort was refixed in position. The leaky roof of the barracks was rendered watertight and breaches in moat-walls filled up.

136. FORT, TELLICHERY, DISTRICT CANNANORE.—The western fa9ade of the fort-wall was extensively pointed and the dilapidated and fallen watch-tower rebuilt in the original pattern.

137. MATTANCHERY PALACE, COCHIN, DISTRICT ERNAKULAM.—Damp-proof course was laid in the eastern wing of the wall and the floor re-laid with fresh concrete. The garden along with the approaches was improved.

138. ST. FRANCIS CHURCH, COCHIN, DISTRICT ERNAKULAM.—An apron was laid around the church to drain off rain-water. The corrugated iron sheet-roof was painted.

139. FORT, PALGHAT.—The breach inside the rampart-wall was rebuilt in laterite stone-masonry.

140. KODAKKALLU-PARAMBU, CHERUMANAGAD, DISTRICT TRICHUR.—The fencing was strengthened by fixing vertical wires. The approaches were gravelled and the drainage-system improved.

141. SIVA TEMPLE, PERUVANAM, DISTRICT TRICHUR.—The elaborate wooden carvings were treated with Cuprinol for its proper preservation.

Madras

142. GROUP OF MONUMENTS, KANCHIPURAM, DISTRICT CHINGLEPUT.—In the Muktesvara temple a barbed-wire fencing on reinforced cement-concrete posts was put up and a retaining-wall constructed to replace the damaged masonry of the revetment. At the Vaikuntha-perumal temple plaster was renewed at places where the portions were affected by salt. A tubular gate with welded mesh was provided at the entrance. A later wall in the Airavatesvara temple was removed and welded-mesh wooden-frames fixed in the ventilators. A barbed-wire fencing with welded-mesh tubular gate was

provided in the Kailasanatha temple. The leaky terrace of the *mandapa* was rendered watertight.

143. GROUP OF MONUMENTS, MAHABALIPURAM, DISTRICT CHINGLEPUT.—A dwarf wall was constructed in front of the sculpture depicting Arjuna's Penance to prevent rain-water from accumulating in the adjacent pit. Cracks appearing on the Five Rathas were grouted and pointed (pl. CLXXIX).

144. DUTCH FORT AND CEMETERY, SADRAS, DISTRICT CHINGLEPUT.—A breach in the rampart-wall was restored in conformity with the original character of the masonry.

145. NITYAKALYANASVAMI TEMPLE, TIRUVIDANTHAI, DISTRICT CHINGLEPUT.—The leaky terraces of the *yaga-sala* and *mandapa* were rendered watertight and the undulating stone-floor of the Amman-shrine was re-set in conformity with the old one.

146. GROUP OF MONUMENTS, FORT ST. GEORGE, MADRAS.—In Clive's Building new treads with iron-bar supports and railings to the flight of steps were provided.

Repairs in Block XXXVI, housing the Fort Museum, consisted of the fixing of roll-up shutters and improvement to the floors in the rear gate-entrance.

147. OLD TOWN-WALL, TONDIARPET, MADRAS.—Extensive plastering was carried out to the walls.

148. PANCHA-PANDAVA BEDS, ALAGARKOIL, DISTRICT MADURAI.—A flight of steps was constructed to provide proper approach to the cave.

149. FORT, DINDIGUL, DISTRICT MADURAI.—A rock-cut flight of steps were provided and the drain was covered with slabs. A door was also provided and the flooring made good.

150. JAINA MONUMENTS AND INSCRIPTIONS, KILAKUYILKUDI, DISTRICT MADURAI.— Steps were provided after cutting the rock-faces. The work is in progress.

151. SOMANATHA TEMPLE, MELPADI, DISTRICT NORTH ARCOT.—The crack appearing in the entrance of the *kalyana-mandapa* were grouted and filled up and the breaches in the compound-wall properly underpinned.

152. SUBRAMANYA TEMPLE, VALLLIMALAI, DISTRCIT NORTH ARCOT.—A teak-wood door was provided and steps taken to arrest leakage in the temple.

153. FORT AND MONUMENTS, VELLORE, DISTRICT NORTH ARCOT.—Damaged plaster was restored on the rampart-wall. The Jalakantesvara temple was attended to by way of providing portable wooden bridge to span the gap over the *dalan* and teak-wood props to support the cracked lintels and brackets.

154. FORT AND BUILDINGS, ATTUR, DISTRICT SALEM.—The leaky terrace of the *kalyana-mandapa* of the Venkata-perumal temple within the fort was rendered water tight.

155. FORT AND TEMPLE ON THE HILL, CHINNAKAVANDANUR, DISTRCIT SALEM.—An ornamental wooden door was provided to the temple.

156. HILL-FORT, NAMAKKAL, DISTRICT SALEM.—An iron-door was provided and the decayed plaster from the exterior and interior faces of the Magazine-building restored.

157. GROUP OF MONUMENTS, GINGEE, DISTRICT SOUTH ARCOT.—The leaky terrace of the *kalyana-mandapa* was made watertight.

158. BRIHADISVARA TEMPLE, THANJAVUR.—Bat-proof expanded-metal screens were fixed in the doors and windows. The later walls were removed and the decayed wooden joints replaced in the *gopuram*.

159. BRIHADISVARA TEMPLE, GANGAIKONDACHOLAPURAM, DISTRICT TIRUCHCHIRAP PALLI.— Bat-proof expanded-metal screens were provided in the openings and windows of the temple. Wood-preservatives were applied to the wooden ceiling.

160. SIVA TEMPLE, KALIYAPATTI, DISTRICT TIRUCHCHIRAPPALLI.—The *vimana* was made watertight by grouting and filling cracks and joints. The dislodged stones in the floor and basements were properly re-set.

161. GROUP OF MONUMENTS, KUDUMIAMALAI, DISTRICT TIRUCHCHIRAPPALLI.—The breaches in the compound-wall were restored in conformity with old character of the masonry.

162. ROCK-CUT SIVA TEMPLE, KUNNANDARKOIL, DISTRICT TIRUCHCHIRAPPALLI.—A portion of the leaky terrace of the *maha-mandapa* was re-laid.

163. GROUP OF MONUMENTS, NARTTAMALAI, DISTRICT TIRUCHCHIRAPPALLI.—A portion of the fallen compound-wall on the top of the hill was reconstructed.

164. FORT, RANJANGUDI, DISTRICT TIRUCHCHIRAPPALLI.—The rear entrance in the fort-wall was strengthened by grouting and re-setting of the dislodged stones.

165. BHUMINATHASVAMI TEMPLE, SEVALUR, DISTRICT TIRUCHCHIRAPPALLI.—In order to prevent ingress of bats rope-net was provided at the openings of the cave.

166. OLD SIVA TEMPLE, TIRUKALAMBUR, DISTRICT TIRUCHCHIRAPPALLI.—The leaky terrace of the monument was rendered watertight.

167. ROCK-CUT CAVE-TEMPLE, TIRUMALAPURAM, DISTRICT TIRUNELVELI.—New rock-cut s eps were provided in the granite rock and the surface made uniform.

MYSORE

168. OLD DUNGEON, FORT AND GATEWAYS, BANGALORE.—The decayed plaster over the parapet and the rampart-walls was renewed. An iron door was provided to the cell and the floor paved with stones.

169. ANANTASAYANA TEMPLE, ANANTASAYANAGUDI, DISTRICT BELLARY.—The floor of the *mukha-mandapa* was given a coat of plaster.

170. GROUP OF MONUMENTS, HAMPI, DISTRICT BELLARY.—The breaches in the fort-wall near the domed gateway were made good by the use of huge blocks of stones and the scattered boulders collected and stacked for re-use. A narrow secret passage on the western side of the fortification was exposed. Teak-wood doors of the Malayanatha-Raghunathasvami. temple were fixed and dry-stone packing in the form of apron was provided along the pathways. The second bay of the Elephant Stable was connected with adjoining room for housing the Museum. The floor was paved with stones and a door provided in the opening of the adjoining room.

171. TIPU SULTAN'S UPPER FORT AND CITADEL, NAGALACHERUVU, DISTRICT BELLARY.—A flight of steps was provided between Gates 2 and 3.

172. GOPALA-KRISHNA AND SIVA TEMPLES, TIMMALAPURAM, DISTRICT BELLARY.—Extensive jungle-clearance was carried out and the two temples were connected by laying a new pathway.

173. HARI-HARESVARA TEMPLE, HARIHAR, DISTRICT CHITALDURG.—The leaking terraces of the *maha-mandapa* and *mukha-mandapa* and the Lakshmi temple were rendered watertight.

174. GROUP OF MONUMENTS, SRAVANABELAGOLA, DISTRICT HASSAN.—Some recent walls were dismantled and new stone flooring provided. The *garbha-griha* was provided with a metal door.

175. KOLARAMAN TEMPLE, KOLAR, .—Cut-stone sun-shades were provided in the ventilators.

176. BHOGA-NANDISVARA TEMPLE, NANDI, DISTRICT KOLAR.—The repairs at this monument included making the terrace watertight, providing a teak-wood door and re laying the stone flooring. The work is still in progress.

177. PANCHAKUTA-BASTI, KAMBADAHALLI, DISTRICT MANDYA.—The *pial* on either side of the entrance was paved with stone slabs and the dislodged and sunken flooring re-laid.

178. GROUP OF MONUMENTS, SRIRANGAPATNA, DISTRICT MANDYA.—The flooring of the *gumbad* was given a coat of plaster and the approach-paths gravelled.

179. TEMPLES, TONNUR, DISTRICT MANDYA.—The leaky terrace of the *malapalli* was made watertight.

180. KESAVA TEMPLE, SOMNATHPUR, DISTRICT MYSORE.—The uneven stone-flooring was re-set and expanded metal door provided.

181. GROUP OF MONUMENTS, TALAKAD, DISTRICT MYSORE.—A dilapidated modern tiled building standing in the midst of the monuments was dismantled. Sand covering the plinth of the temple was removed.

182. DEVA-GANGA PONDS, BASAVANABYNE, DISTRICT SHIMOGA.—The breaches in the inner masonry wall were underpinned and cut-stone steps provided to the inner part of the *prakara.*

183. TEMPLES AND INSCRIPTIONS, KUPPAGADDE, DISTRICT SHIMOGA.—The zinc-sheet roofing was removed and the leaky terrace rendered watertight. The sculptured stones bearing inscriptions were arranged on a platform and breaches in the retaining-walls and steps leading to the tank made good.

184. MALLIKARJUNASVAMI TEMPLE, NADKALSI, DISTRICT SHIMOGA.—The terrace of the temple which had been profusely leaking was rendered watertight. Other repairs included such items as making good the dislodged flooring and putting up expanded-metal frame in the door of the shrine.

185. ANANTA-PADMANABHA TEMPLE, KARKAL, DISTRICT SOUTH KANARA.—The dislodged floor on either side of the temple including the corridor was re-paved with cut-stones. New steps were provided to the platform.

SOUTH-WESTERN CIRCLE

Maharashtra

186. FARAH-BAGH PALACE, AHMADNAGAR.—The monument with its huge arched openings had suffered damage due to percolation of rain-water. All the tops of fallen walls, arches and side's were rendered watertight. The decayed plaster on the exterior of walls was raked out and the surface replastered. The loose concrete of the floors

was dismantled and re-laid with new concrete. The surroundings of monuments were dressed by the removal of debris and vegetation.

187. SALABAT KHAN'S TOMB, MEHEKRI, DISTRICT AHMADNAGAR.—The modern walls blocking the arches were dismantled. Proper approaches were laid on either side of the monument.

188. ROCK-CUT CAVES, AJANTA, DISTRICT AURANGABAD.—Pillars in the verandah of Cave 17 constructed in the past in ashlar-masonry were dismantled and redone in re inforced cement-concrete (pl. CLXXX) matching the rock-cut character of the monument. Similarly, all the jambs and walls on east side of Cave 12. supported by ashlar-masonry were dismantled and redone in reinforced cement-concrete. Further work on these lines is in progress. With a view to avoiding dust over the paintings inside the caves, all loose earth in open spaces in front of the caves was removed and the portion concreted and later chiselled to match with the texture of the rock. Some cracks and fissures appearing in sculptures in Cave 26 (pls. CLXXXI and CLXXXII) were repaired.

189. BIBI-KA-MAQBARA, AURANGABAD.—The plastering of the north-east *minar,* taken up last year (1960-61, p. 99), was completed. The walls measuring about 30 m. on the east and about 15 m. on the north was also similarly plastered. The water-cisterns were made watertight by the dismantling of the loose concrete and laying of fresh concrete. The garden around the tomb was also improved.

190. ROCK-CUT CAVES, AURANGABAD.—In the course of removal of debris from the precincts of the newly-discovered cave (1960-61 p. 99), another plain cave came to light. The work of removal of earth and boulders from the top of the caves in Group 2 was started to trace the source of leaking. The work is in progress.

191. ROCK-CUT CAVES, ELLORA, DISTRICT AURANGABAD.—In continuation of last year's work (1960-61 p. 100), the conservation of Caves 10 to 15 was taken up and the ashlar-masonry work done in the past in Caves 10, 11 and 12 was dismantled and redone in reinforced cement-concrete. The work is still in progress. In order to find out the original features the accretions and the cement-concrete path laid in front of these caves were dismantled. The modern masonry platform in front of Cave 16 was also dismantled to enable visitors to have a better view of the famous Kailasa temple. *The gopuram* of Cave 16, which had developed vertical cracks, was attended to by way of providing clamps, grouting with cement-mortar and finishing to match with the texture of the rock.

192. ROCK-CUT CAVES, KANHERI, DISTRICT BOMBAY SUBURBAN.—Clearance-operations undertaken at Cave 38 (pl. CLXXXIII) revealed the lay-out of the brick and stone *stupas.* Similar work in front of Caves 2 and 3 brought to light a brick platform, *stupas,* etc. (pl.CXLVII). See also above, p. 101. In order to provide easy access to the group of caves, a new path was laid on the eastern side.

193. ELEPHANTA CAVES, GHARAPURI, DISTRICT KOLABA.—The broken pillars in the northern part of the main cave were restored in reinforced cement-concrete matching the original rock-cut character of the cave. Masonry platforms were constructed in front of Caves 2 and 5. The courtyard in front of Cave 1 was cleared up and levelled.

194. FORT, RAYAGAD, DISTRICT KOLABA.—In order to expose the original ground level, debris was removed from the foreground of the Sat-Minar. Terraces were constructed in front of Shivaji's *samadhi* for laying a garden around it.

195. KOPESVARA TEMPLE, KHIDRAPUR, DISTRICT KOLHAPUR.—Debris was cleared from the top of the temple and the roof covered with cement-concrete to stop leakages. The accumulated earth was removed from the area around the temple to expose the plinth, sculptures and elaborate ornamental designs. The surrounding area was levelled for proper drainage of rain-water.

196. PANDULENA CAVES, PATHARDI, DISTRICT NASIK.—On the lines of the conservation of rock-cut caves of Ajanta, a systematic programme was drawn up for the conservation of these caves. Ashlar-masonry pillars erected in the past were dismantled and renewed in reinforced cement-concrete. Rock-cut drains were provided on the top of the caves for diversion of rain-water which had been directly falling on the facade.

197. NAGANATHA TEMPLE, AUNDAH, DISTRICT PARBHANI.—Loose debris consist ing of earth and boulders was removed from the south-west corner in order to stop seepage of water in the foundation. The defunct drain meant for the drainage of water outside the temple was cleaned. All rank vegetation from the temple area was also removed.

198. ROCK-CUT CAVES, BHAJA, DISTRICT POONA.—A rock-cut drain was excavated on the top of caves to prevent the flow of rain-water over the facade. The loose boulders in front of the newly-discovered cave were removed and site cleared of debris. A few rock-cut steps were provided for easy access to the caves.

199. ROCK-CUT CAVES, JUNNAR, DISTRICT POONA.—The approach-path leading to the caves was maintained by spreading *morum* and drains were repaired for proper drainage of rain-water. A rock-cut drain was provided on the top of the Bhima-Sankara group of caves to stop the flow of rain-water on the fa9ade. The broken pillars and jambs of Caves 4 and 5 were restored in reinforced cement-concrete and chiselled to reproduce the texture of the original rock.

200. FORT, SHOLAPUR.—A modern rubble wall was dismantled and rebuilt with cut-stones, in accordance with its original character. The masonry additions to the mosque inside the fort were also removed. The fort-wall on the side of the Siddesvara tank was made watertight.

201. FORT, BASSEIN, DISTRICT THANA.—The Church of the Holy Name of Jesus situated inside the fort was attended to by way of filling joints, plastering the walls and making the tops of walls watertight. The surrounding area which had been full of rank vegetation was cleared and levelled.

Mysore

202. PANCHALINGADEVA TEMPLE, HUBLI, DISTRICT BELGAUM.—The accumulated earth over the flat roof of the temple was removed to reduce the weight. Angle-iron support was given to a broken lintel. The joints in the *sikhara* were plugged after removal of vegetation.

203. BAHMANI TOMBS, ASHTUR, DISTRICT BIDAR.—Fresh plaster was laid in place of the decayed plaster on the walls.

204. FORT, BIDAR.—All rank vegetation on the fort-wall was removed. The underground drain at Delhi-Darwaza, which had been full of debris, was cleared for the easy flow of rain-water.

205. MADRASA OF MUHAMMAD GAWAN, BIDAR.—Debris was removed from one of the vaulted bays of the monument. Decayed and loose floor-concrete was raked out and fresh concrete laid to make it watertight.

206. GROUP OF MONUMENTS, AIHOLI, DISTRICT BIJAPUR.—A missing ceiling-slab of the Mallikarjuna temple was renewed and expanded-metal doors were fixed in the openings of this and the Charanti-Math temple. The missing pavement-slabs were renewed and the remaining pavement was re-set and given an outward tilt.

207. GROUP OF MONUMENTS, BADAMI, DISTRICT BIJAPUR.—In order to stop the flow of rain-water over the exposed Nataraja image on the rock-surface of Cave 1, the cavity appearing above the sculpture was filled in with plaster and the surface chiselled to match the texture and colour of the rock. The fallen wall of the fort-gate was reconstructed and its top rendered watertight. A parapet-wall around the gun bastion in the south fort was put up for the safety of visitors. The missing plaster from the fort-wall was redone.

208. GROUP OF MONUMENTS, BIJAPUR.—The missing plaster on the pillars and arch of Shah Nawaz Khan's tomb, as also on the walls of Mustafa Khan's mosque, was renewed to match the original colour and texture of the plaster. Expanded-metal door frame was fixed in the opening leading to the top floor of the latter monument to stop the entry of bats. The decayed plaster on the walls of Malik Jahan's Masjid was raked out and a fresh coat of plaster applied. Similarly, the decayed plaster on the wall-surface of the gate of Jami'-Masjid was removed and replaced with a fresh coat of plaster. Missing kerb-stones were also refixed at the monument. A parapet-wall with coping was constructed along the steps leading to 'AH-Burj and Landa-Qasab gun bastion. The area around the latter was levelled and a parapet-wall constructed for the safety of visitors. The damaged moat-wall around the inner citadel near the Narasimha temple was dismantled and reconstructed. Portions around the tomb in the underground vaults of the Gol-Gumbad were made watertight. The window-openings were provided with expanded-metal doors. To stop the entry of animals in the newly-planted garden in the compound of the Gol-Gumbad, wooden and turnstile gates were fixed at the entrance. The fallen compound-wall of the Jod-Gumbad was reconstructed, while a new compound-wall was erected around the *Rauza* of 'AH II.

209. TANK WITH COLONNADES NEAR VANA-SANKARI TEMPLE, CHOLACHAGUD, DISTRICT BIJAPUR.—The missing stone pavement in the colonnades was renewed.

210. NAGARESVARA TEMPLE, BANKAPUR, DISTRICT DHARWAR.—The plinth of the temple was exposed by removing the debris from the compound.

211. MONUMENTS, DAMBAL, DISTRICT DHARWAR.—A cement-concrete apron was provided all round the Somesvara temple to make the portions immediately around the monument watertight. The area in front of the temple was levelled. A retaining-wall and a few steps were constructed in front of the temple.

212. SOMESVARA TEMPLE, HARALAHALLI, DISTRICT DHARWAR.—The work of renewing and reconstructing the out-of-plumb portion of the *mandapa,* commenced earlier (1960-61, p. 101), was continued and completed. A cement-concrete apron was provided all round the temple for making the sides watertight. A retaining-wall was also constructed on the right side of the temple for strengthening the base and for having an even level all round the temple.

213. SIDDESVARA TEMPLE, HAVERI, DISTRICT DHARWAR.—The dry-pitching all round the compound was renewed and a retaining-wall in masonry constructed.

WESTERN CIRCLE

Gujarat

214. BABA-LAULIS MOSQUE, AHMADABAD.—This magnificent monument standing on the high bank and at the confluence of a nullah with the Sabarmati is almost invariably affected by the heavy annual floods. For the protection of the retaining-wall a rubble-packing encaged in iron bars was provided at the toe, so as to reduce the effect of scouring. A reinforced cement-concrete coping over the protection-wall was also provided for the extra cohesion of the unit. A crack noticed in the protection-wall at the south-east corner was opened and filled in after necessary grouting. Reinforced cement-concrete bands at intervals of about .75 m. were provided inside the cracked wall for ensuring its safety.

215. BAHLOL KHAN GHAZI'S MOSQUE, DHOLKA, DISTRICT AHMADABAD.—The courtyard in front of the mosque was paved with bricks over a bed of cement-concrete.

216. MALAV TANK, DHOLKA, DISTRICT AHMADABAD.—The work of fixing seat-stones on either side of the causeway leading to the central pavilion and of re-setting steps on the eastern side of the tank and the Place of Justice were continued (1960-61, p. 102) and completed. Patches of the fallen ashlar-masonry parapet-wall with brick backing round the tank were rebuilt by new stones dressed where necessary.

217. EXCAVATED REMAINS, LOTHAL (SARAGWALA), DISTRICT AHMADABAD.—Removal of silt from inside the dockyard was undertaken on a wide scale. Conservation of the mud-brick structures in Street 4 with specially-produced cement-concrete bricks simulating mud-bricks was carried out. A part of the damaged burnt-brick structures on the mound was conserved. An overall clearance-work of excavated remains was carried out and all the structures on the mound were kept in a presentable condition. Reinforced cement-concrete posts for barbed-wire fencing were fixed. Further work is in progress.

218. BUDDHIST CAVES, JUNAGADH, DISTRICT JUNAGADH.—Clearance was taken up around the caves and as a result a few more structural remains were brought to light. A modern rubble retaining-wall was constructed, and the old passage to Cave 6 reopened.

219. KHAPRA-KODIA CAVES, JUNAGADH, DISTRICT JUNAGADH.—Stone pillars which had been provided in this rock-cut monument in the past were removed and fourteen new reinforced cement-concrete pillars were provided matching the existing rock-cut pillars in shape, texture and colour. The exterior surface of the roof of the caves was also made watertight by filling cement-concrete in the hollows and cavities on the top.

220. JAMI'-MASJID, CAMBAY, DISTRICT KAIRA.—The dilapidated and decayed stones of the pavement of the north corridor were removed and fresh Dhrangadhra stones provided in their places. The uneven flooring caused by the exfoliation of stones in the western bay of the mosque was taken out carefully and fully repaired after providing necessary bedding.

221. HINGLOJI-MATA TEMPLE, KHANDOSAN, DISTRICT MEHSANA.—The foundations of this temple standing on the high bank of a tank and very close to it on the south and east were being periodically undermined. To prevent this permanently, a brick retaining-wall, about 47 m. long and 3 m. high and of a suitable section, was constructed in cement-mortar.

222. MAHADEVA TEMPLE, BAVKA, DISTRICT PANCHMAHALS.—The dislodged stones of the four corner shrines were taken down and re-set in their original position in lime-cement mortar.

223. GROUP OF MONUMENTS, PAVAGARH, DISTRICT PANCHAMAHALS.—A part of the citadel-wall facing the main-road was made watertight. The fallen and missing portion of the brick walls on cither side of the Mandvi gate was reconstructed in lime-mortar. Fort-walls near the main gate to the Patai-Rawal palace were made watertight and a part of fallen ashlar-masonry near by was restored. Debris was removed from the rooms, thereby bringing to light a staircase leading to the top of the palace. One side of the palace facing the steep valley was provided with galvanized iron pipe-railing for the safety of visitors. Wide cracks in the masonry of the Mint above Gate 4 were suitably filled in and decayed concrete over the top was removed and fresh lime-cement-concrete laid. A part of the wall adjacent to the Mint was made watertight. The remaining part of the steps leading to the Sat-Manzil was provided with galvanized iron pipe-railing. A part of fort-wall near the cutting made by the State Public Works Department for laying a road was cleared of jungle; the open joints were pointed and the top was made water tight.

Rajasthan

224. GROUP OF TEMPLES, BADOLI, DISTRICT CHITORGARH.—The stones of the northern walls and uneven steps inside the *kund* were carefully taken down and re-set in their original places.

225. GROUP OF MONUMENTS, FORT, CHITORGARH.—The dismantling and re-setting of the Ratnesvara temple, above the lintel-level, was continued (1960-61, p. 103) and completed. This work is an example of careful and effective conservation of a large-sized temple with a badly-cracked and out-of-plumb fabric.

The eastern Sati gate and Ram-Pol were fully conserved (pl. CLXXXIV) by the provision of new members in place of broken ones and repairs to the bulges in the ashlar and rubble-wall in the case of Ram-Pol. The ashlar-masonry all around the eastern Sati gate was raised to the roof-level. After the insertion of roof-slabs and capitals, a bed of cement-concrete was provided and a parapet-wall was constructed all round the terrace of the eastern Sati gate.

Dislodged roof-stones and loose rubble-packing below the Mahadeva temple near Gomukh were taken down and the fabric of the roof of the *sabha-mandapa* suitably repaired (pl. CLXXXV).

The work of removing debris from within Rampura House and making the tops of walls watertight were taken up and completed.

After the clearance of jungle debris was removed for exposing the original features of Jaimal House. The exposed structures was made watertight by raising the tops of walls and providing lime-cement-concrete on the terrace.

D6bns was removed for exposing the original features of Chunda-House. The tops of walls were made watertight and the masonry underpinned wherever needed. Stone lintels were provided to the door in place of missing ones (pl. CLXXXVI).

Fallen debris was removed from the right wing of the gate of Alah-Kabra's House, thereby exposing its original structure. Damaged and sunken parts of the gate and its roof were repaired, grouted and made watertight.

The structures between Rana Kumbha's palace and Jata-Sankara temple, which had hitherto been covered with debris, were partially exposed. The nature of this structure is

being studied and it will be conserved in due course. The main gate to this portion of the palace-complex was conserved.

Debris was removed from the entire area of the Khatan Rani's palace and parts of walls were made watertight. The dome in the south-east corner was suitably repaired.

226. GROUP OF TEMPLES, MENAL, DISTRICT CHITORGARH.—Debris was removed from the area all round the row of smaller temples along the western compound-wall of the Mahanala group to expose the original plinth of the temples. The *nandin* in front of the Mahanala temple was removed and replaced after repairs to its plinth. The sunken stones of the plinth of the Hindola-Torana were removed and re-set in their original places.

All the members of the double shrine which had tilted and sunk were removed and reconstructed in their original place and the terrace was made watertight.

The ashlar-masonry of the plinth around the monastery was repaired. The brick-work of the first storey, which had been out-of-plumb, was removed and reconstructed matching the adjacent existing portions of the brick work between the pilasters.

The ashlar-slabs of the balcony overlooking the gorge, which had sunk and become uneven, were dismantled and re-set. The out-of-plumb side-walls were taken down and re-set. The disturbed flooring on the top portion was also properly redone.

227. GROUP OF MONUMENTS, MANDOR, DISTRICT JODHPUR.—Debris was removed from the area around the Jaina temple so as to study the plinth. The top of the pavilion was rendered watertight with lime-concrete and its pavement repaired with new stones. Debris was also cleared from the vicinity of the Brahma temple and stacked properly in one place. The sculptures found during the course of excavations were arranged near the temple. A regular pathway was provided from one monument to the other.

228. FORT, KUMBHALGARH, DISTRICT UDAIPUR.—The spongy concrete of the roof of the Golerao temple was taken down and fresh concrete was re-laid after thorough grouting the cracks.

229. SAS AND BAHU TEMPLES, NAGDA, DISTRICT UDAIPUR.—A part of the sunken and uneven pavement of the high plinth was taken out and repaired in lime-cement-mortar after providing necessary cushion. The tilted brickwork of the roof of the *sabha-mandapa* of the Bahu temple was removed and replaced with brickwork in lime-cement-mortar with chiselled and moulded bricks at the edges after the provision of stone lintels.

MONUMENTS MAINTAINED BY STATES

ANDHRA PRADESH

The following monuments received attention :

1. NAWAB'S TOWERS, CUDDAPPA.
2. RUINS OF GOPAL RAJA'S PALACE, KURNOOL.
3. HILL-FORT, BHONGIR, DISTRICT NALGONDA.
4. CHAYA-SOMESVARA TEMPLE, PANAGAL, DISTRICT NALGONDA.
5. PACCHALA-SOMESVARA TEMPLE, PANAGAL, DISTRICT NALGONDA.
6. ERUGULAMMA TEMPLE, NELLORE.

GUJARAT

7. FORT, JHINJHUVADA, DISTRICT AHMADABAD.—The four gates and rampart-walls of the fort were cleared of all vegetation. The fallen portions of Mada-pol gate were restored (pl. CLXXXVII).

8. HARISCHANDRA-NI-CHORI TEMPLE, SHAMLAJI, DISTRICT SABAR-KANTHA.—The monument was cleared of vegetation and conserved.

KERALA

9. KRISHNAPURAM PALACE, KAYAMKULAM, DISTRICT ALLEPPEY.—This palace, transferred to the State Department on the 1st April, 1962, was attended to by way of replacement of broken tiles, provision of wooden rafters and pillars and construction of a boundary-wall.

MADRAS

10. PADMANABHAPURAM PALACE, THUKALAY, DISTRICT KANYAKUMARI.—The Department of Archaeology, Kerala State, completed the reconstruction of the collapsed building opposite the Museum. Other repairs consisted of the replacement of tiles and stopping of leakages in different parts of the palace. The reconstruction of certain sec tions of the building and the removal and replacement of broken rafter and pillars is in progress.

MAHARASHTRA

11. KHOLESVARA TEMPLE, VAMBORI, DISTRICT AHMADNAGAR.—The monument was cleared of vegetation and thoroughly conserved.

12. BARADARI IN BANI-BEGAM'S GARDEN, KHULDABAD, DISTRICT AURANGABAD.—The front of the Baradari was paved with Shahabad stones.

13. DHARA-SIVA CAVES, OSMANABAD.—The fallen chunks of rock blocking entry to Cave 2 from the first group of caves were partially cleared.

ORISSA

The following monuments received attention :

14. BAHIRANGESVARA TEMPLE, DHAULI, DISTRICT PURI.

15. GATISVARA TEMPLE, SAKHIGOPAL, DISTRICT PURI.

RAJASTHAN

16. AKBAR'S FORT, AJMER.—The monument was attended to by way of extensive clearance of vegetation, maintenance of approach-roads and removal of debris in order to expose the plinth of the Audience Chamber. Ornamental railing was provided around the central building with a view to preventing unauthorized entry in the museum-premises.

17. TORANA, BAGHERA, DISTRICT AJMER.—The missing parts of the Torana were rebuilt.

18. GOPINATHAJI TEMPLE, SARWAR, DISTRICT AJMER.—The damaged and fallen pillars of the temple were repaired.

The following monuments also received attention :

19. CHHATTRI OF MAUSI MAHARANI, ALWAR.
20. FATEH JANG GUMBAJ, ALWAR.
21. MUCHKUND TANK, DHOLPUR, DISTRICT BHARATPUR.
22. PALACES, AMBER, DISTRICT JAIPUR.
23. MUGHAL GATEWAY, BAIRAT, DISTRICT JAIPUR.
24. ASTRONOMICAL OBSERVATORY, JAIPUR.
25. HAWA-MAHAL, JAIPUR.
26. FORT, NAHARGARH, JAIPUR.
27. DEVALS, MANDOR, DISTRICT JODHPUR.

X. ARCHAEOLOGICAL CHEMISTRY[1]

TREATMENT OF MONUMENTS AND PAINTINGS

BIHAR

1. ASOKAN PILLAR, LAURTYA-ARARAJ, DISTRICT CHAMPARAN.—The Asokan pillar was chemically treated and preserved with a view to preventing flaking of the stone and deterioration of the inscription.

2. ASOKAN PILLAR, LAURIYA-NANDANGARH, DISTRICT CHAMPARAN.—The pillar, which had been showing signs of flaking and disintegration, was chemically treated and preserved. The inscribed surface was consolidated and strengthened with synthetic resin-solutions.

3. MAKHDUM SHAH'S TOMB, MANER, DISTRICT PATNA.—The delicately-carved designs on the ceiling of the verandahs were carefully freed of injurious soluble salts, accretions of algae, dust and dirt and the surface chemically cleaned and preserved (pl. CLXXXVIII). The surface was consolidated and further deterioration checked.

4. EXCAVATED REMAINS, NALANDA, DISTRICT PATNA.—The decaying stucco-figures were subjected to elaborate chemical treatment for the elimination of highly-injurious soluble salts and the eradication of algal growth. The stuccos were given a protective treatment with a suitable transparent resin-solution with a view to protecting the figures from the deleterious effects of moisture. A careful examination of the problem revealed that the entry of soluble salts from the back of the stucco figures to their upper surface cannot be altogether stopped; the treatment was therefore aimed at breaking the concentration of soluble salts and reducing its amount to a low level. The salts replenished by the movement of moisture from the back of the stuccos have thus to be removed periodically by subjecting the stucco figures to chemical treatment at suitable intervals.

5. FORT, ROHTASGARH, DISTRICT SHAHABAD.—In continuation of last year's work (196(>-61, p. 106), the paintings in Man Singh's palace were subjected to elaborate chemical cleaning for the removal of accretions of dust, dirt and limewash. The elimination of calcareous accretions called for very careful treatment and manipulative skill; and the work resulted in bringing to light obscure details over a large area. The work is still in progress.

DELHI

6. IRON PILLAR, QUTB, DELHI.—The celebrated iron pillar situated in the court yard of the Quwatu'l-Islam mosque was showing signs of corrosion and decay. The base of the pillar was, therefore, excavated and the rusted surface cleaned of all injurious accretions. After the elimination of rust, earthy accretions and soluble salts, the surface was treated with suitable rust-preventive reagents and the cracks and holes consolidated as a temporary measure (see also above, p. 124). Chemical treatment and preservation of

[1] Information from the Archaeological Chemist of the Survey, except as noted below, p. 148 n.

the pillar including consolidation of open holes and cracks is being examined and the work will be taken up as soon as the technique is finalized.

7. RED FORT, DELHI.—The chemical treatment and preservation of the paintings on the ceiling of the Diwan-i-Khas was continued (1960-61, p. 106). The loose hanging flakes of pigment-layer were secured to the ceiling and then preserved after general chemical cleaning for the elimination of harmful accretions. The original brightness of the paintings was largely restored by chemical treatment and preservation. This work, which requires extreme care, is still in progress.

The carved marble-screen at one end of the verandah of the Diwan-i-Khas was subjected to chemical treatment with a view to eliminating hard and age-old accretions of dust, dirt and grease. As a result of chemical cleaning with emulsifying agents, detergents and organic solvents, which were free of all corroding effect and undesirable after-effects, the darkened marble was rendered quite clean and its pristine colour and lustre were restored. This work is in progress.

GUJARAT

8. TAMBEKARWADA, BARODA.—In continuation of last year's work (1960-61, p. 106), the paintings in the first floor were chemically treated by way of removing the old preservative coat, cleaning the surface and applying fresh preservative. Extensive filleting was also carried out for consolidating the broken edges of painted plaster.

9. DARBARGARH, SIHORE, DISTRICT BHAUNAGAR.—The broken edges of the paintings and the painted stuccos in the outer verandah of both the ground and first floors, which had become loose, were carefully consolidated by filleting with toned cement-plaster.

MADHYA PRADESH

10. DEVI-JAGADAMBI TEMPLE, KHAJURAHO, DISTRICT CHHATARPUR.—The chemical treatment of the stone surface of the temple was continued (1960-61, p. 107) and the entire area was preserved with solutions of synthetic resins. The treated temple provides a refreshing contrast to the dull and patchy appearance of other temples awaiting the elimination of age-old accretions and chemical treatment.

11. LAKSHMANA TEMPLE, KHAJURAHO, DISTRICT CHHATARPUR.—Adherent deposits of limewash and certain resistant strains of vegetational growth were eliminated from the sculptures and carvings of this temple. The fungicidal treatment and preservation of the chemically-treated stonework was also carried out.

12. ROCK-CUT CAVES, BAGH, DISTRICT DHAR.—In continuation of previous work (1960-61, p. 107), considerable progress was made in the elimination of greasy, sooty and tarry accretions from the paintings in these caves.

13. GADA SHAH'S PALACE, MANDU, DISTRICT DHAR.—The highly-fragmentary remains of paintings inside the monument were cleaned of superficial accretions with the help of organic solvents, detergents and emulsifying agents, and the painted surface was impregnated with very thin transparent solutions of synthetic preservatives to prevent the flaking of pigments and to minimize the action of dust-laden winds and moisture.

14. TAPSI-MATH, BILHARI, DISTRICT KATNI.—The extensive remains of wall-paintings in the monument were taken up for chemical treatment. The greater part of the

painted surface was freed of dust, dirt and other accretions and preserved with suitable synthetic resin-solution after the consolidation of flaking pigments and loose plaster.

15. HAMAM, BURHANPUR, DISTRICT NIMAR EAST.—-The paintings in the monument were chemically treated and preserved after the elimination of injurious accretions of dust, dirt and grease. The colours were rendered bright and their tendency to flake off was checked by impregnating the painted surface with transparent solutions of synthetic preservatives.

16. SHAH SHUJA'S TOMB, BURHANPUR, DISTRICT NIMAR EAST.—The paintings in the tomb were subjected to elaborate chemical treatment by way of fixing the pigment layer to the plaster-surface by the use of a suitable surface-fixation after the elimination of all accretions of dust, dirt and smoke. The chemically-cleaned painted surface was there after given a transparent protective coat of resin-varnish. The work is in progress.

17. STUPA 1, SANCHI, DISTRICT RAISEN.—The plaster over the 5/«pa-surface was subjected to preservative treatment with a view to protecting it from further decay. All vegetation-growth was removed with zinc silicofluoride.

MADRAS

18. BRIHADISVARA TEMPLE, THANJAVUR.—In continuation of last year's work (1960-61, p. 107), the paintings on the four walls of Chamber 4 were cleaned and consolidated by the elimination of the old preservative and cleaning of the painted surface by filter-paper technique. Similar work was taken up in the adjoining chamber and all the accretions were eliminated from the south wall by the filter paper method and the painted surface preserved with a suitable transparent fixture. Further work in Chamber 6 is in progress.

MAHARASHTRA

19. ROCK-CUT CAVES, AJANTA, DISTRICT AURANGABAD.—The paintings on the western walls of west and south aisles in Cave 17 were cleared of all accretions like soot, dust and dirt and freed of old varnish which had become dark and brittle. As a result of the elimination of shellac, more details became visible in the Vessantara-Jataka panel. Extensive filleting was carried out on both walls and ceilings in Caves 1, 7 and 16.

The paintings on the west wall of east aisle in Cave 16 were subjected to chemical treatment with the help of various solvents and mixtures and the chalkiness, which had rendered the surface dull, was completely removed without disturbing the pigment-layer. Filleting of the loose paintings and the broken stuccoes was attended to on the ceilings of the central hall of the cave.

The Vakataka inscription in Cave 17 was chemically cleaned and preserved.

20. ROCK-CUT CAVES, ELLORA, DISTRICT AURANGABAD.—Stucco-patches bearing paintings on the eastern wall in north aisle and western wall of west aisle of Cave 32 were suitably filleted and secured to the stone surface. Portions on the wall and ceiling of the northern aisle of Cave 33 were similarly attended to. The work is in progress.

Several painted panels on walls and pillars in Caves 32 and 33 were subjected to elaborate chemical and preservative treatment with a view to eliminating injurious surface accretions, fixing the loose pigment-films and consolidating the softened and weak plaster.

21. MAHAKALI TEMPLE, CHANDA.—The old yellowish preservative and accretions of grease, smoke and dust were eliminated from the painted surface in the temple with the

use of organic solvents and reagents. The surface was thereafter preserved with a thin transparent resin-solution.

22. MONOLITHS, LALPETH, CHANDA.—Accretions of dust and dirt and the growth of moss and lichen were removed from the surface of the monolithic images lying exposed to the deleterious action of soluble salts by suitable chemical and fungicidal treatment. Finally the surface was preserved with a transparent synthetic resin-solution.

23. ROCK-CUT CAVES, BEDSA, DISTRICT POONA.—The inscriptions, sculptures and carvings in the *chaitya-hall* were heavily affected with moss and lichen and other resistant vegetational growth. Ammoniated water was used for softening and eliminating these harmful accretions. The clean stone surface was subjected to fungicidal treatment and finally preserved with vinyl acetate solution.

24. ROCK-CUT CAVES, NANAGHAT, DISTRICT Poona.—The inscriptions in the cave were deteriorating due to the weathering of rock-surface on account of the presence of saline air and moisture. The entire area was therefore freed of soluble salts by paper-pulp technique followed by a careful washing with salt-free water. The growth of vegetation and algae was softened with ammonia solution and removed, rendering the surface clean. Finally the weathered rock-surface was impregnated with a surface-fixture to consolidate the rock and to protect the inscribed surface from further damage.

MYSORE

25. GOMMATESVARA STATUE, SRAVANABELGOLA, DISTRICT HASSAN.—The back of the Gommatesvara statue was subjected to general cleaning with santobrite teepol and other harmless detergents and the surface rendered fit to receive the preservative treatment with a wax-emulsion. The work is in progress.

26. DARYA-DAULAT-BAGH, SERINGAPATAM, DISTRICT MANDYA.—In continuation of previous work (1960-61, p. 108), the paintings were subjected to elaborate chemical cleaning. The removal of old hardened bees' wax, which had obscured and damaged the paintings, was successfully carried out with suitable organic reagents and solvents. The paintings on the ceilings and southern walls of northern outer hall were chemically treated and preserved. Consolidation of the broken edges of painted surface was carried out by careful filleting.

As a result of treatment the paintings on the ceilings of the central hall of the ground floor become bright and clean displaying all the original colours in their natural shades. The work is in progress.

ORISSA

27. RAVANA-CHHAYA, SITABENJI, DISTRICT KEONJHAR.—The scanty remains of paintings on the underside of the overhanging rock were fully treated. The work is in progress.

28. BRAHMESVARA TEMPLE, BHUBANESWAR, DISTRICT PURL—Resistant accretions of moss and lichen were removed from the stone surface of the temple by using suitable reagents in dilute concentrations. The work is in progress.

29. LINGARAJA TEMPLE, BHUBANESWAR, DISTRICT PURL—In continuation of previous work (1960-61, p. 108), the work of chemical treatment and preservation of the *bhoga-mandapa* and the *nata-mandira* was completed. The results obtained were very satisfactory.

30. RAJA-RANI TEMPLE, BHUBANESWAR, DISTRICT PURL—The chemical and pre servative treatment of the stone surface of the temple, which had remained in progress in previous years (1960-61, p. 108), was completed. The vegetation-growth was completely eradicated and the stonework consolidated by synthetic resin-solutions.

31. MAYA-DEVI TEMPLE, KONARAK, DISTRICT PURL—Adherent deposits of moss and lichen were eliminated from a considerable surface of the stonework. Ammoniated water was used for initial softening of extremely resistant age-old accretions. Attempts were also made to eliminate from the stonework as much soluble salt as possible. The work which involves great care and patience will be spread over a few years.

32. RANI-GUMPHA, UDAYAGIRI, DISTRICT PURL—All traces of moss and lichen and other accretions such as dust and injurious soluble salts were removed from the sculptures. The clean stone surface was strengthened and consolidated by repeated applications of thin preservative solutions.

RAJASTHAN

33. JATA-SANKARA TEMPLE, CHITORGARH.—The chemical treatment of the exterior of the temple, begun previously (1960-61, p. 108), was completed and the entire area was eliminated of moss and lichen. Preservation of stone surface with a suitable fixative was also completed. The treatment of the sculptured brackets of the ceiling of the central hall is in progress.

34. SCULPTURES, NAGARI, DISTRICT CHITORGARH.—The loose sculptures lying in the vicinity of the brick temple were chemically cleaned with a view to eliminating injurious accretions of moss and lichen. They were treated with ammonia-water for the elimination of algal growth, washed repeatedly with salt-free water in order to eliminate soluble salts and finally preserved with a thin transparent solution of vinyl acetate resin.

UTTAR PRADESH

35. CHINI-KA-RAUZA, AGRA.—The paintings inside the Rauza were attended to. Methods for fixing the pigments and eliminating hardened varnish and other accretions which had been evolved after experimental work last year were found successful in the removal of the accretions, fixing of the pigments and bringing out of the details of the paintings. This work was extended to larger areas and will continue for about a year.

The broken edges of the painted plaster were also consolidated by filleting and thirty-two large patches were treated.

The preservation of tilework in this monument, which had been in progress (1960-61, p. 109), was successfully completed. The *pietra dura* decoration was completely freed from harmful accretions and rendered bright by using harmless organic reagents free from any undesirable aftereffects (pl. CLXXXIX). All loose portions were suitably secured to the plaster and the surface fixed with an inert transparent fixative.

36. DIWAN-I-KHAS, FATEHPUR-SIKRI, DISTRICT AGRA.—The central carved pillar was freed of injurious accretions and chemically cleaned and preserved with a surface-fixative.

37. MARIAM'S HOUSE, FATEHPUR-SIKRI, DISTRICT AGRA.—The old roughened preservative layer was removed from the painted surface in the process of the elimination of the deposits of dust, cobwebs and grease. After necessary chemical cleaning with harmless organic solvents free of all undesirable aftereffects, the painted surface was fixed and consolidated with a transparent resin-solution.

38. KHUSRU'S TOMB, KHUSRUBAGH, ALLAHABAD.—The wall-paintings inside the tomb, which had been showing signs of flaking and disintegration, were carefully preserved after the strengthening and consolidating of the flakes and disintegrating pigments.

39. LAKSHMI-NARAYANA TEMPLE, BAIJNATH, DISTRICT ALMORA.—The sculptures and carved surfaces of the temples which had been heavily coated with algae and vegetational accretions and undergoing disintegration on account of salt action were subjected to chemical treatment. All the hardened age-old accretions were eliminated, the soluble salts present in the surface of stone were removed by washing and paper-pulp treatment and the surface was subjected to fungicidal treatment with copper naphthenate and sodium pentachlorophenate. The surface was thereafter strengthened and consolidated by the impregnation of transparent synthetic resin-solutions (pl. CXC).

40. ASVAMEDHA SITE, JAGATGRAM, DISTRICT DEHRA DUN.—The growth of moss and lichen on the inscribed and uninscribed bricks of the *asvamedha-altars* was eliminated by preliminary treatment with aquous ammonia and treatment with a suitable fungicide. The bricks so treated were impregnated with solutions of synthetic resins and the entire surface of bricks was consolidated. Two of the three sites were completely treated and preserved. The work on the fourth site is in progress and will be completed shortly.

WEST BENGAL

41. SYAMA-RAI TEMPLE, VISHNUPUR, DISTRICT BANKURA.—The chemical treat ment of the ornate brick temple was initiated and considerable progress registered in the work of the elimination of hardened accretions of moss and lichen. The portions thus treated were subjected to paper-pulp treatment to remove soluble salts embedded in the brickwork. The work is in progress.

TREATMENT OF EXCAVATED OBJECTS AND MUSEUM-EXHIBITS

As many as seven hundred and sixtynine antiquities, variously of iron, copper, bronze, lead and silver, from Ujjain (pl. CXCI, Ratnagiri (pl. CXCII) and other places were treated and preserved, as a result of which the original details of designs, inscriptions, etc., were brought out by suitable chemical, electrochemical or electrolytic treatment. The antiquities were preserved with synthetic resin-solutions.

Two old decorated palanquins, one from the Fort St. George Museum, Madras, and the other from Bibi- ka-Maqbara, Aurangabad, were subjected to elaborate chemical treatment and later preserved with satisfactory results.

In the laboratory newly set up by the Department of Archaeology, Rajasthan, State, one hundred and eightyseven antiquities, consisting of copper and silver coins', sculptures, paintings and carpets, were cleaned and preserved.[1]

ANALYSES AND RESEARCH

1. GEOCHRONOLOGICAL STUDIES.—Geochronological studies claimed a fanshare of the attention of the laboratories of the Archaeological Chemist of the Survey. A large number of soil-specimens from excavated sites were examined and subjected to mechanical analysis and heavy-mineral studies. The geochronological studies on soil-samples from excavations at Kunnattur, District Chingleput, Nagda, District Ujjain, Nagarjunakonda, District Guntur, Alamgirpur, District Meerut, and Ujjain were completed and all data carefully analysed and collated. The geochronological investigation of

information from the Director of Archaeology and Museums, Rajasthan State.

the soil-samples from the *teris* in south India and from the excavated trenches at Adamgarh, District Hoshangabad, was also completed.

The investigation of samples of high- and low-level laterites from Nellore, Andhra Pradesh, was continued and all analytical data worked out.

Several specimens of laterite from Bhubaneswar, District Puri, were also examined and studied for the determination of the mechanism of lateritization. Chemical analysis was undertaken to find out the nature of the weathering; heavy-mineral studies and petrographic examination are being undertaken.

In continuation of last year's work (1960-61 p. 110) the petrographic investigation of soil-specimens from Lothal, District Ahmadabad, and Rangpur, District Surendranagar, was completed. Similarly, the study of samples of dune-sand from Rajasthan was continued (1960-61, p. 110); mechanical analysis and heavy-mineral examination were carried out and the data so collected were worked out.

The method of flourine-analysis of bones was standardized and four specimens of bone examined and their flourine content estimated.

2. PRESERVATION OF PAINTINGS. -The problem of the restoration of the original colours used in the paintings of Darya-Daulat-Bagh, Seringapatam, was investigated. Attempts were made to devise a suitable technique and to evolve some reagents for brightening the pigments without affecting the priming and plaster for the support. Several solvents, detergents, emulsifying agents and varnish-removers were tested for their efficacy in imparting to faded or darkened pigments their original brightness and in restoring them to their natural tonal depths. As a result of these investigations, it was found that the treatment on the paintings with triethonalamine, followed by its elimina tion from the painted surface with suitable chemicals, resulted in the restoration of the original brilliance of the pigments, specially yellow and green. This technique was adopted on a large scale with spectacular results and all the colours were restored to their original brilliance and depth of tones without in any manner affecting the colours or leaving any bad after-effect.

3. CHEMICAL ANALYSES.—More than two hundred of archaeological specimens, comprising *inter alia* old fat from Sunet, District Ludhiana, pottery, bronze and copper, from Lothal and pigments of paintings in the monuments at Agra and Fateh-pur-Sikri, were chemically examined and analysed. The chemical composition of bronze, copper and iron specimens drawn from different antiquities was determined by chemical analysis with a view to throwing light on the technique of their manufacture and the nature and source of raw materials used.

Specimens of pottery, glass and glaze were chemically analysed and examined to determine the nature, composition and properties of the raw materials used and the techniques employed in shaping, decorating and baking them.

Specimens of rust and corrosion-products from the base of the iron pillar at Qutb, Delhi, were subjected to chemical analysis for the detection of the factors responsible for corrosion and determination of the chemical changes which the original metal had undergone. Metallographic and microscopic examination is also to be carried out in order to have an insight into the inner structure of the iron. The work is in progress.

4. TREATMENT OF MARBLE.—The problem of cleaning marble which had been taken up for investigation last year was studied this year. As a result of intensive investigations, suitable emulsifying agents and detergents were found out for dealing with black hardened accertions on marble surfaces. The results so obtained were utilized in the chemical treatment and preservation of marble structure in the Diwan-i-Khas, Red Fort, Delhi.

XI. ARCHAEOLOGICAL GARDENS'

ANDHRA PRADESH

1. HILL-TOP, NAGARJUNAKONDA, DISTRICT GUNTUR.—Clearance in the area of both the first and second enclosures continued briskly (1960-61, p. 111). Natural depressions were dressed up to be converted into informal pools. Thin films of soil, wherever available, were utilized for flower-beds and turfing and many pits were excavated in the rock for planting.

BIHAR

2. EXCAVATED REMAINS AND ARCHAEOLOGICAL MUSEUM, NALANDA, DISTRICT PATNA.—The central lawn in the Museum was returfed. The terraced garden to the south of the excavated site was beautified by various plantations.

3. EXCAVATED REMAINS, KUMRAHAR, PATNA.—About 1£ hectares of jungle-land were converted into lawns. A large depression was converted into a lake.

DELHI

4. QUTB, DELHI.—The two front lawns opposite the *minar* were enclosed with barbed-wire fencing and a hedge grown around it. The rustic garden was improved: many rockeries with flat tops were laid out as picnic-spots and hardy shrubs were planted to enhance the landscape effect.

5. RED FORT, DELHI.—Two mixed shrubberies were planted behind the Diwan-i-'Am. *Inga dulsis* hedges were planted along the roads.

6. 'ABDUR-RAHIM KHAN-I-KHANAN'S TOMB, NEW DELHI.—The shrubberies were improved and canna-beds introduced.

7. HAUZ-KHAS, NEW DELHI.—Uneven dumps of stone were removed, new hedges planted and two small pieces of lawn returfed.

8. HUMAYUN'S TOMB, NEW DELHI.—To enhance the landscape effect *Oresdoxa regia* palms alternating with Bougainvillaea var. Mary Palmer were planted in the peripheral region of the Bu-Halima garden. In the area of the tomb of 'Isa-Khan annuals were planted along the roads. The area behind 'Arab-Sarai, previously overgrown with wild shrubs, was dressed up. In Humayun's tomb proper twelve plots were returfed and many trees were balanced by judicious lopping. *Inga dulsis* hedges were laid along the roads at certain places. In the nursery propagational activities were considerably increased: eight to ten thousand pots were grown and many new varieties of plants were obtained from different parts of India.

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information from : 14 and 16, the Director of Archaeology, Kerala State; 20, the Director of Archaeology and Museums, Rajasthan State; and the rest, the Assistant Garden Superintendents of **the** Survey.

9. JANTAR-MANTAR, NEW DELHI.—TWO small plots of lawns were dug, freed of excess soil and returfed. The rectangular cistern was converted into an aquatic garden.

10. KOTLA FIRUZ SHAH, NEW DELHI.—Three plots were returfed and dot plants laid along the roads.

11. LODI TOMB, NEW DELHI.—The area around the tomb of Sikandar Lodi was returfed. The lawns around that tomb and that of Muhammad Shah were provided with low fencing and many annual and herbaceous flower-beds were introduced around the monuments.

12. NAJAF KHAN'S TOMB, NEW DELHI.—As nothing taller than l½m. can be grown here owing to the proximity of the aerodrome, more of annual flower-beds and date-palms were grown.

13. SAFDARJANG'S TOMB, NEW DELHI.—Taking advantage of the heavy damage done by waterlogging due to heavy rains, the entire garden was replanned. The two front sectors were shaped into four extensive lawns, instead of nine smaller ones which had existed before, and peripheral beds of roses, cannas and annuals were laid. The four water-channels, dry hitherto, were filled and provided with fountains.

KERALA

14. MISCELLANEOUS GARDENS.—Gardens were laid out in front of and inside the Krishnapuram palace, the Kottapuram fort and the Cheran-Parambu monument.

MADHYA PRADESH

15. WESTERN GROUP OF TEMPLES, KHAJURAHO.—A small nursery was started. Scarcity of water forbids extensive improvements to the lawns.

MADRAS

16. PALACE, PADMANABHAPURAM, DISTRICT KANNIYAKUMARI.—Gardening operations were started in the inner courtyard in line with the existing garden in the front courtyard.

MYSORE

17. ASAR-MAHAL, BIJAPUR.—A nice garden, with lawns, paths, shrubbing-borders and flower-beds, was developed.

18. GOL-GUMBAD, BIJAPUR.—A number of beds were prepared and planted with roses and seasonal annuals in the four upper plots. The land in front and to the east of the main platform was dug and turfed. Hardy fruit-plants were introduced in an area and shady and flowering trees were planted on the eastern side. Roads and peripheral plantation were completed.

19. JOD-GUMBAD, BIJAPUR.—The entire area was converted into a garden. The western plot was planted with fruit-trees and the back side was dressed for grassing.

RAJASTHAN

20. MISCELLANEOUS GARDENS.—The gardens and lawns attached to the Observatory at Jaipur and at Gethore, the Dewals at Mandore and Chaman-Bagichi and in the Museum at Bharatpur received attention.

21. PALACES, DIG, DISTRICT BHARATPUR.—Ten plots on either side of the Gopal-Bhavan were returfed. Large quantities of rose and jasmin plants were planted and the shruberies were embellished with better varieties of plants.

UTTAR PRADESH

22. FORT, AGRA.—The area in front of the Diwan-i-'Am was regrassed. Sandstone edging was provided around the lawns in the Akbari-Mahal and Jahangiri-Mahal. Water-supply was improved by the provision of an electric motor and pump in a *baoli* in front of the Diwan-i-'Am.

23. I'TIMADU'D-DAULA, AGRA.—The river-side lawns and the lawns in the forefront were returfed. A large number of rose-beds were introduced.

24. KHANI-I-'ALAM, AGRA.—The collection of plants was augmented. The nursery supplied various archaeological gardens with about fifty thousand plants.

25. RAM-BAGH, AGRA.—Old and dead branches of trees were pruned. Improved varieties of roses were introduced and picnic-spots provided.

26. ROMAN CATHOLIC CHURCH, AGRA.— More than half a hectare of land was returfed.

27. TAJ-MAHAL, AGRA.—Two lawns in the fore court and four in the inner garden were returfed. Sandstone edging was provided along the flower beds. Steps were taken to utilize the water of the fountains for irrigation by opening up old silted up channels. The northern and southern terraced gardens of the Saheli-Burj were grassed and set apart for picnikers.

28. GROUP OF MONUMENTS, FATEHPUR-SIKRI, DISTRICT AGRA.—It has been decided to lay formal and informal gardens here and there to change the dry look of Fatehpur-Sikri. About 2 hectares of land were brought under lawning. Soil had to be transported from the fields down below. Steps are being taken to overcome the shortage of water-supply.

29. AKBAR'S TOMB, SIKANDARA, DISTRICT AGRA.—The look of the gardens was enormously improverd. The lawns in the forecourt were reshaped and the protected with stone edging and iron fencing. About 4 hectares of jungle area were converted into lawns. Two old wells were put into commission to improve the water-supply.

30. EXCAVATED REMAINS, KUSINAGARA, DISTRICT DEORIA.—A huge dump of rubbish and debris was removed from the north-eastern side of the main shrine. A plot of land in the area of the Matha-Kuar shrine was grassed. *Hibiscus mutabillias* was planted along a length of the road, and the northern slope of the car-park was covered with clarodendron.

31. EXCAVATED REMAINS AND ARCHAEOLOGICAL MUSEUM, SARNATH, DISTRICT VARANASI.—Some plots were returfed and the garden was improved and kept in proper trim by appropriate seasonal operations.

XII. PUBLICATIONS

PUBLICATIONS OF THE SURVEY

1. 'ANCIENT INDIA'.—Number 17 (1961) was published. Number 16(1960) is under print.

2. `ANNUAL REPORT ON INDIAN EPIGRAPHY'.—The *Reports* for 1956-57, 1957-58, 1958-59, 1959-60 and 1960-61 are going through the press.

3. CENTENARY PUBLICATIONS.—On the occasion of the Centenary of the Archaeological Survey of India, the following, amongst others, were published : *The Story* of *Indian Archaeology,* by Sourindranath Roy, and *Centenary Exhibition.* The Ministry of Scientific Research and Cultural Affairs published a Special Number of *Cultural Forum* (December 1961), containing articles by officers of the Survey.

4. CORPUS INSCRIPTIONUM INDICARUM SERIES.—Part II of volume II, *Bharhut Inscriptions,* by Heinrich Liiders, and volume VI, *Inscriptions of the Vakatakas,* will be released shortly.

5. 'EPIGRAPHIA INDICA'.—The following parts were published: parts viii (October 1958) of volume XXXII and iv (Octoberl961), v (January 1962), vi (April 1962) and vii (July 1962) of volume XXXIV. Part i of volume XXX (January 1963) was passed for final printing. The following parts are in the press: viii (October 1960) of volume XXXIII, viii (October 1962) of volume XXXIV, ii to vii of (April 1963 to July 1964) of volume XXXV and i to iv (January to October 1965) of volume XXXVI.

6. 'EPIGRAPHIA INDICA—ARABIC AND PERSIAN SUPPLEMENT'.—The number for 1959 and 1960 will be published very shortly. It is proposed to publish the journal annually in future and not on a two-yearly basis. The number for 1961, prepared according to the present scheme, is in the final stage of printing.

7. GUIDE-BOOKS.—The second edition of *Bhubaneshwar,* by Devala Mitra, was published. The Hindi version of *Khajuraho* was reprinted and those of *Sanchi* and *Rajgir* will be out shortly.

8. 'INDIAN ARCHAEOLOGY—A REVIEW'.—The number of 1960-61 was published.

9. MEMOIRS OF THE ARCHAEOLOGICAL SURVEY OF INDIA.—The first ninety pages of number 74, *Kausambi,* by G.R. Sharma, were printed off.

10. PICTURE-POSTCARDS.—The sets of Ajanta (both black-and-white and in colour), Bijapur, Chitorgarh, Ellora, Khajuraho, Mandu and Sarnath were reprinted. The following new sets were published : Ahmadabad, Badoli, the Chola temples (Kodumbalur, Kudumiamalai, Narttamalai and Srinivasanallur), Fatehpur-Sikri, Gangaikondacholapuram, Gingee, Jaunpur, Kanchipuram, Mattanchery, Rajgir, Sasaram, Seringapatam, Sravanabelgola, Sringeri, Thanjavur, Tiruchchirappalli, Udayagiri-Khandagiri and Warangal-Hanamkonda-Palampet.

11. SOUTH INDIAN INSCRIPTIONS SERIES.—Volumes XV, *Bombay-Karnatak Inscriptions* XVII, *Inscriptions collected during* 1903-04, and XX, *Bombay-Karnatak Inscriptions,* are in the final stage of printing.

12. TEMPLE-ARCHITECTURE SERIES.—*The Cave-temples of the Pallavas,* by K. R. Srinivasan, is in the final stage of printing.

OTHER PUBLICATIONS

13. INSCRIPTIONS.—*The Neurgaon Inscription of Ramachandra,* by N. Ramesan, and the *Tundi Copper-plate Grants of the Vishnukundin king Vikramamahendravarman,* by R. Subrahmanyam, were published by the Government of Andhra Pradesh.

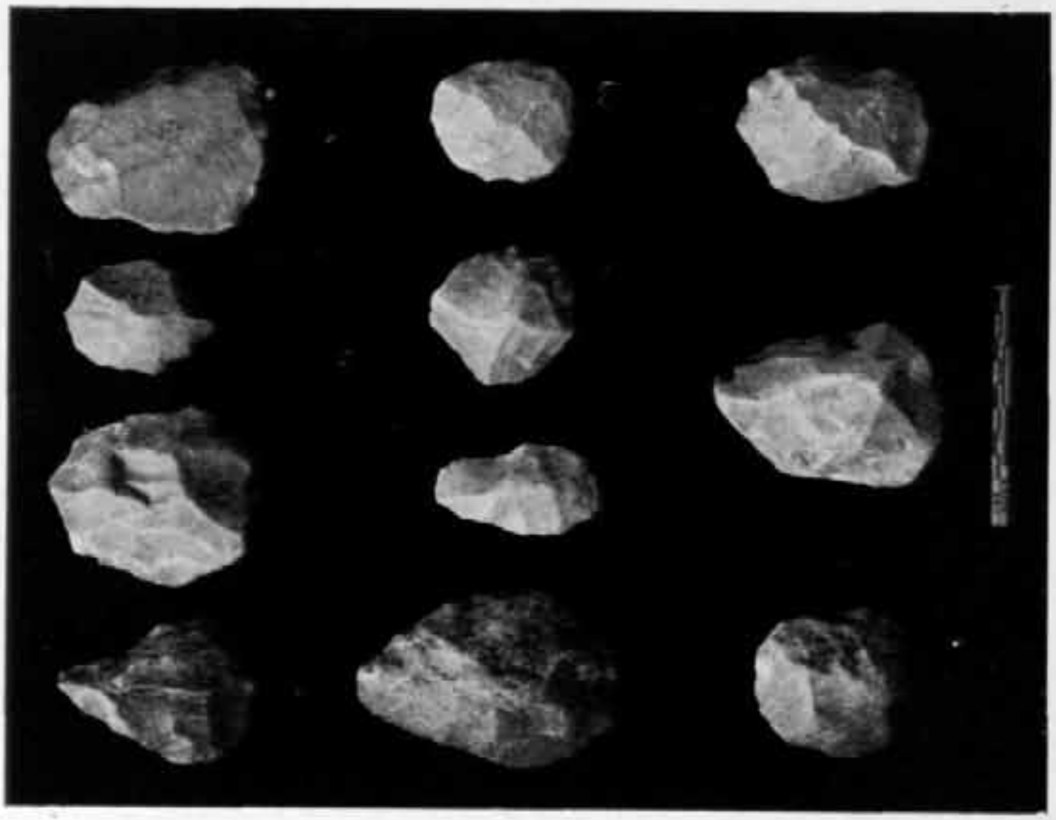
14. MUSEUM-PUBLICATIONS—The Andhra Pradesh Government published the following catalogues of the State Museum, Hyderabad: the Ikshvaku and Vijayanagara coins, respectively by R. Subrahmanyam and N. Ramesan; and the copper plates grants, by the later.

The State Chandradhari Museum, Darbhanga, published a catalogue of ancient manuscripts, by K. K. Mishra.

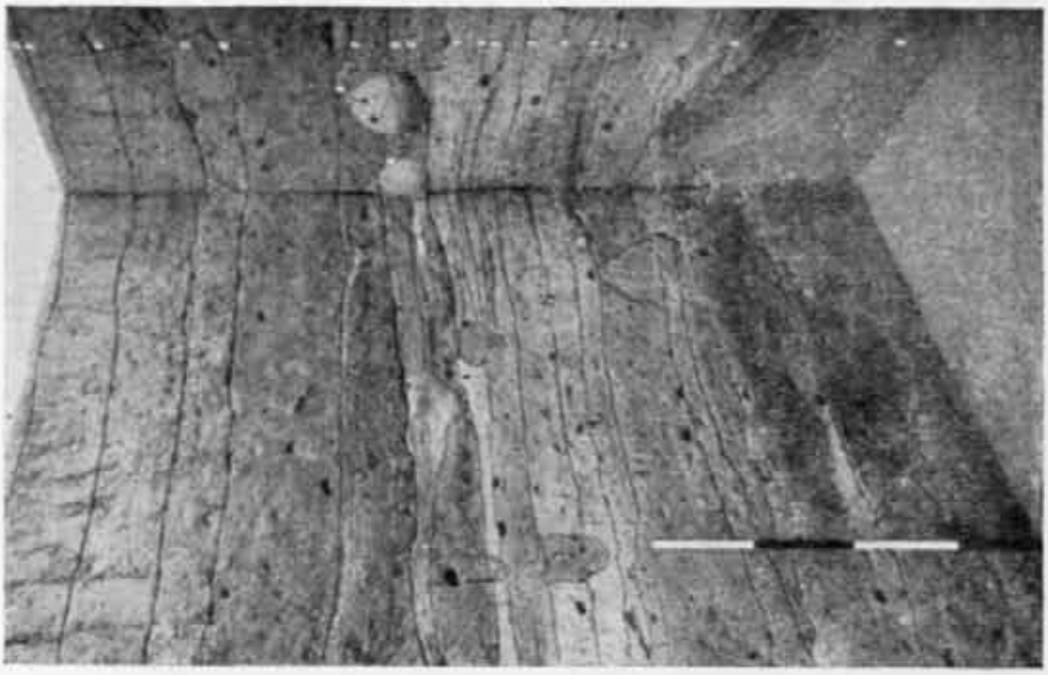
The Government of Rajasthan published catalogues and guide-books relating to the following Museums : Ajmer (part I, Brahmanical sculptures), Alwar, Bharatpur, Bikaner, Jaipur, Jodhpur, Kotah and Udaipur.

15. MONUMENTS.—*Lepakshi Kalamandapam,* by Gopalkrishna Murthy, *Monumental Landmarks of Gujarat,* by J. M. Nanavati, and *Tuljapur-Bhavani* (in Marathi), by N. S. Pohnekar, were published respectively by the Governments of Andhra Pradesh, Gujarat and Maharashtra.

16. PICTURE-POSTCARDS.—The Government of Gujarat produced a set of picture-postcards showing the architectural and sculptural wealth of Gujarat.



A



B

A, *Rentala (first row), Chajarla (second row) and Dharanikota (third row): Early Stone Age tools;*
B, *Kesarapalli: section of trench.* *See p.* 1



A



B

Antichak : A, *general view of Trench* 4 ; B, *crowned Buddha in northern shrine*. *See p*. 3

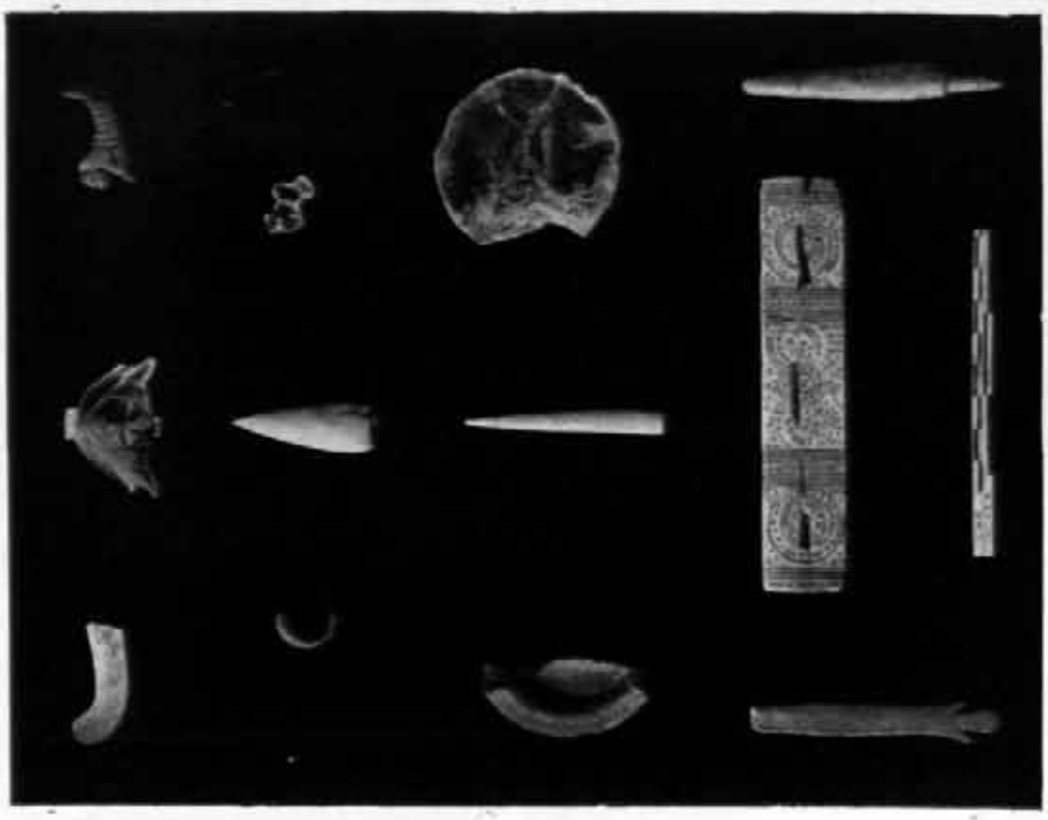


A



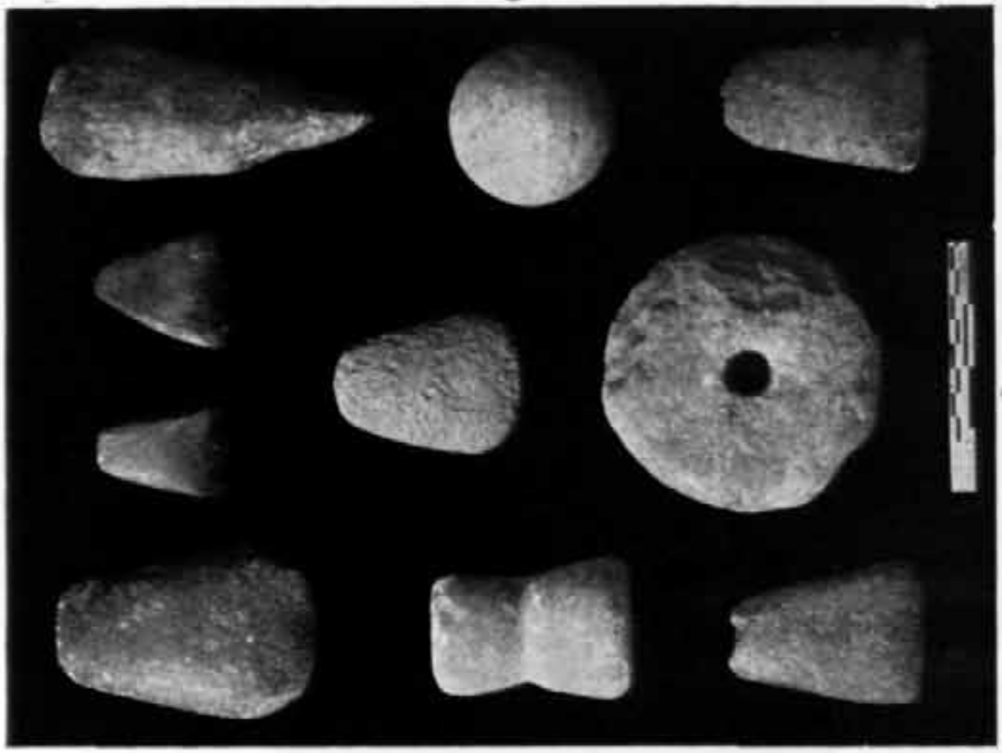
B

Antichak : A, *mutilated image on a pedestal;* B, *pradakshina-patha around main structure in Trench* 2.
See pp. 3 *and* 4





Sonpur : A, *miscellaneous objects, and* B, *terracotta female figurine, Period II.* *See p.* 4



B



A

Sonpur: A, copper objects, and B, neolithic implements, Period II. See p. 5



A



B

Sonpur : A, *terracotta human, and* B, *animal figurines, Period III.* *See p.* 5



A



B



C

Vaisali : A, *soapstone object* (*ht*. 2·5 *cm*.); B, *copper female figurine* (*ht*. 2·2 *cm*.); C, 1, *terracotta mould*, 2, *cast from* 1, 3 *and* 4 *terracotta human figurines*. *See pp*. 5-7



A



B

Rajgir : A, general view of cutting across southern defences ; B, brick retaining-wall, Period II A. See p. 7





A B
Rajgir : A, *section of cutting across* **southern** *defences* ; B, *moat*. *See p.* 7



A

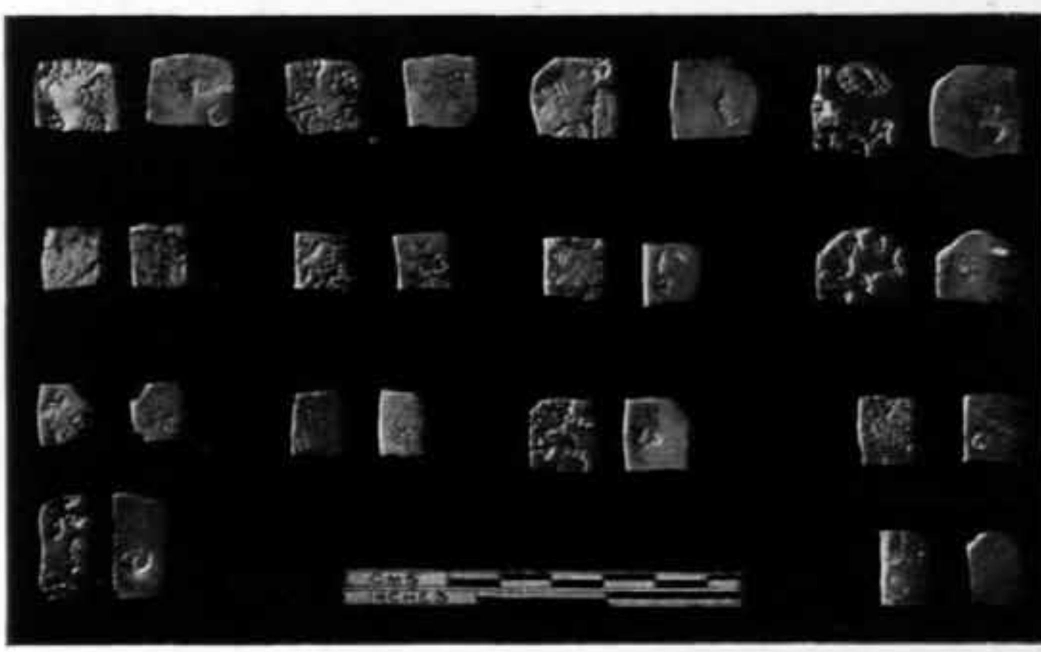


B

Rajgir : A, *pre-rampart habitational deposit* ; B, *bastion with battered brick platform*. *See pp*. 7 *and* 8

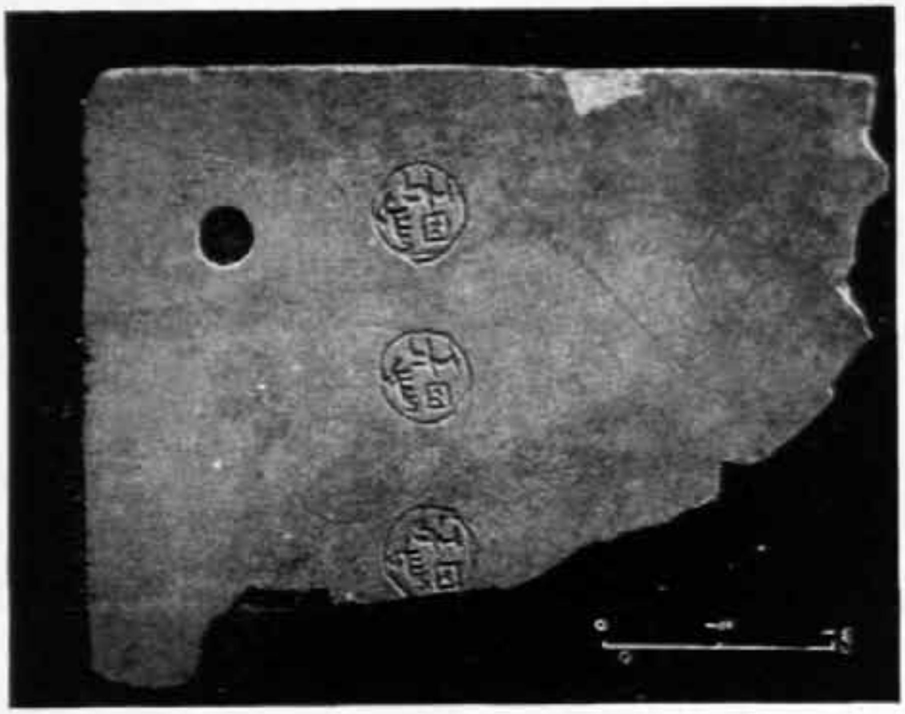


A



B

Rajgir : A, *rubble fortification-wall ;* B, *punch-marked coins, pre-rampart deposits.* *See pp.* 7 *and* 8



A



B



C

Rajgir : A, *steatite amulet* ; B, *painted sherds* ; C, *terracotta human figurines*. *See p.* 7



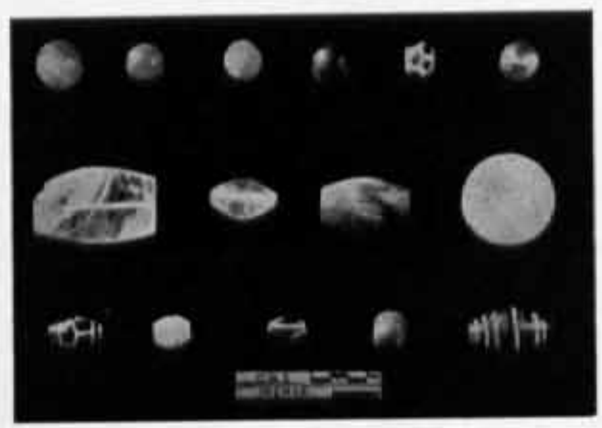
A



B

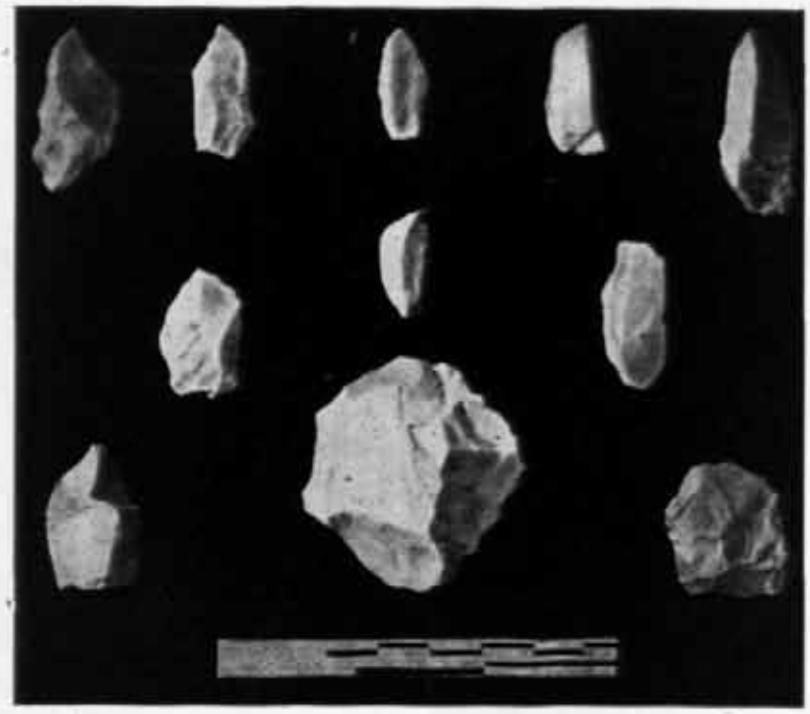


C

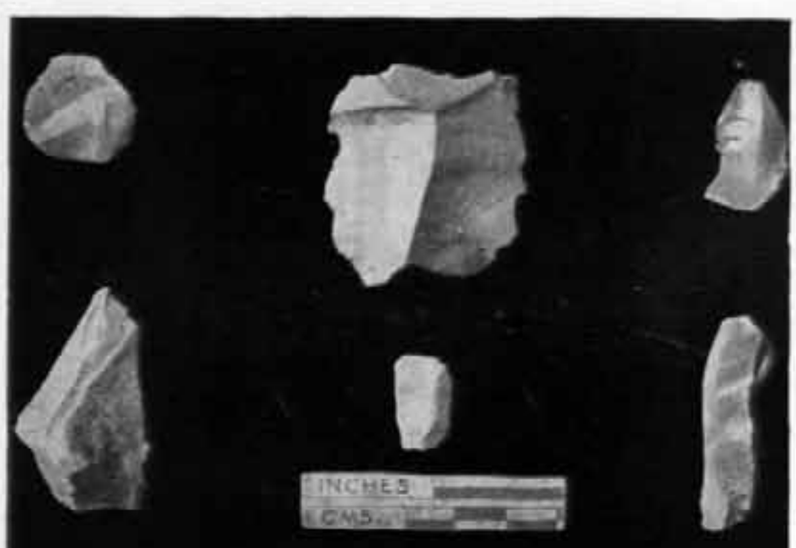


D

Rajgir : A *and* B, *terracottas* ; C, *copper objects* ; D, *beads*. *See pp.* 7 *and* 8

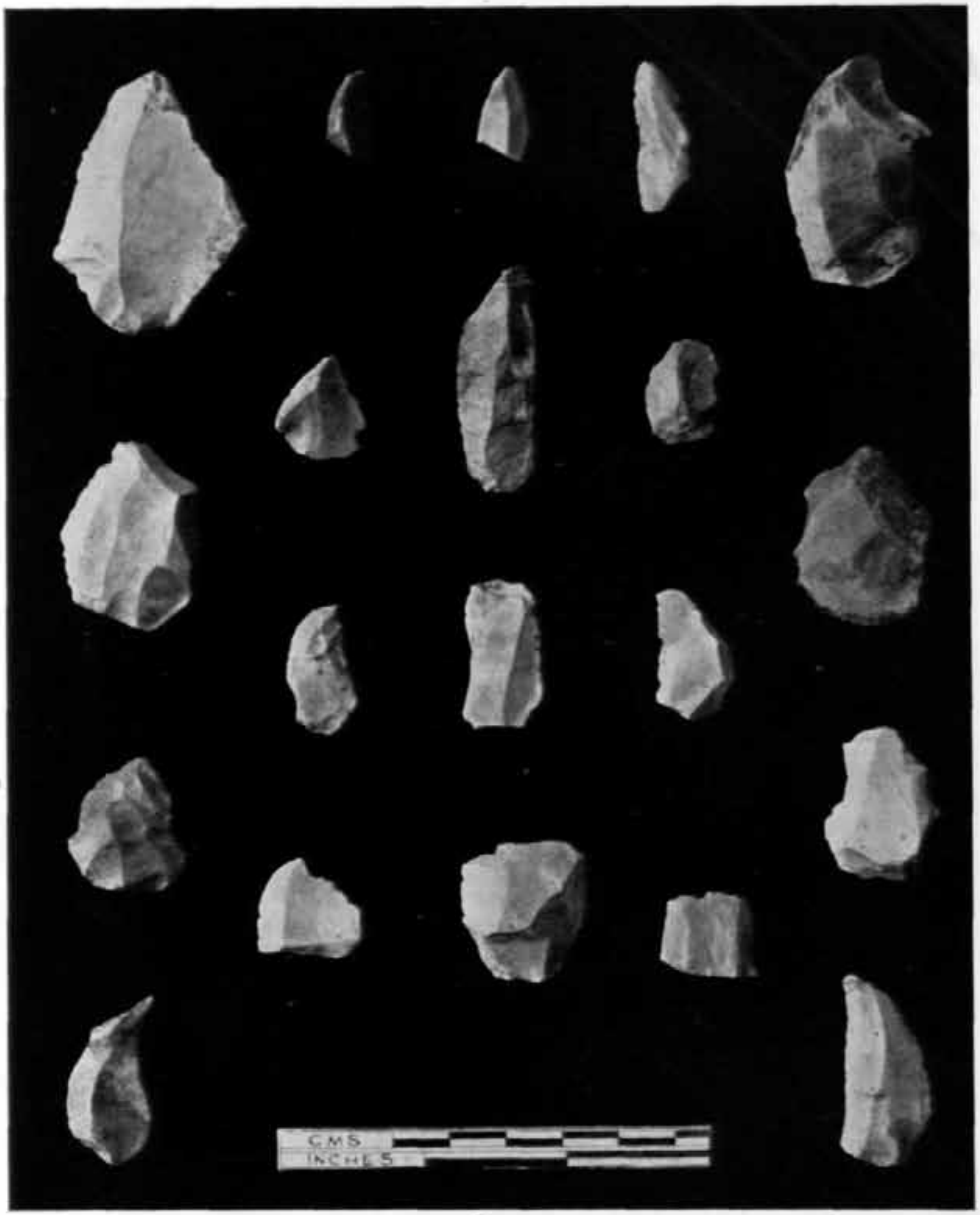


A

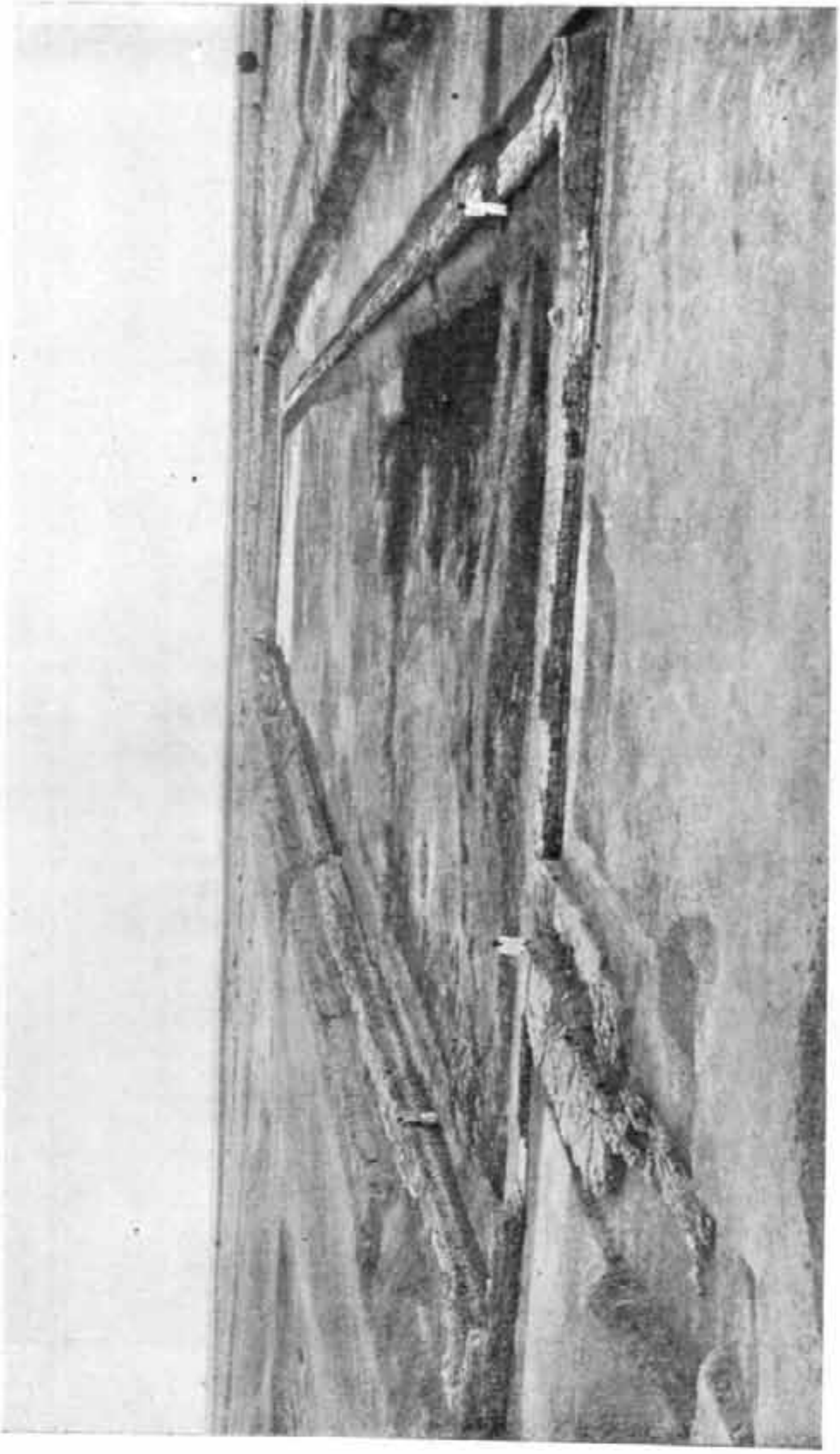


B

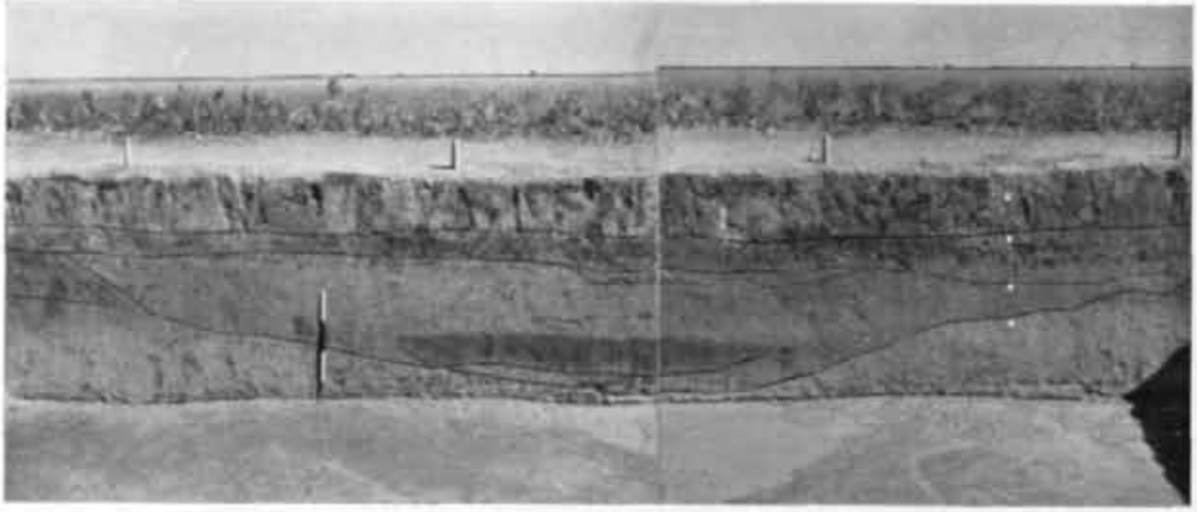
Phuljhari hill and Lidapasi hill : microliths. *See p.* 8



Amuar: microliths. See p. 8



Lothal : dock. See p. 10



A

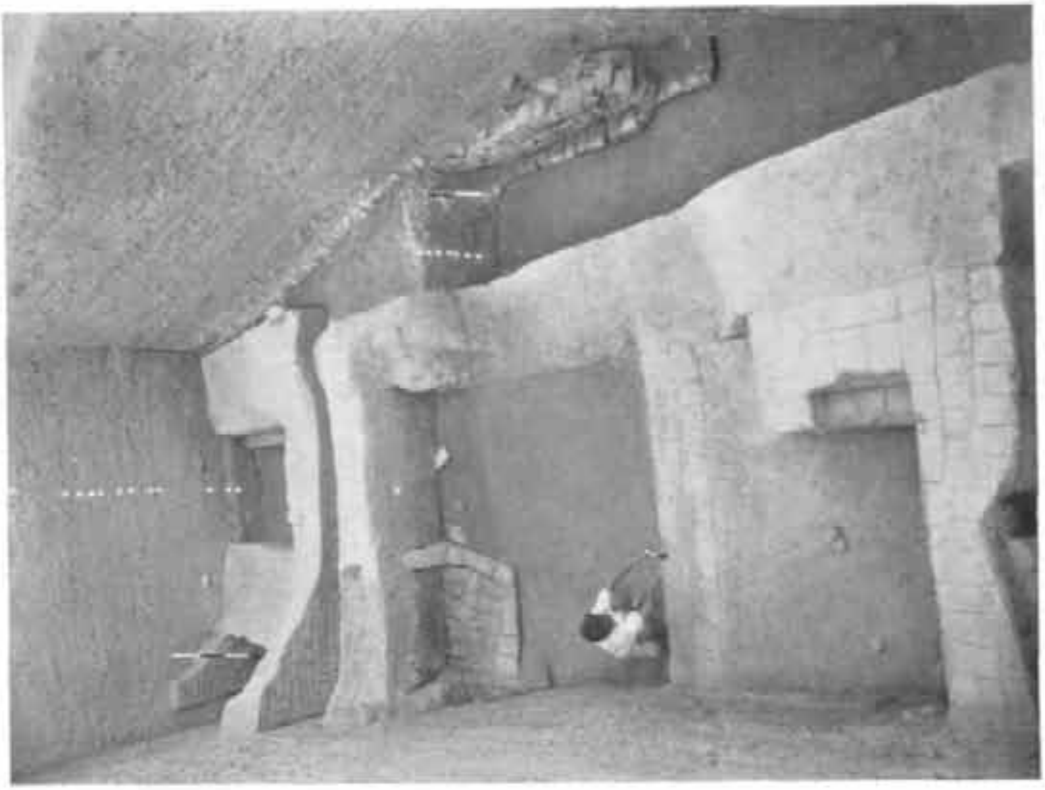


B

Lothal : A, *section across inlet-channel of dock* ; B, *brick wall with abutments.* *See p.* 10

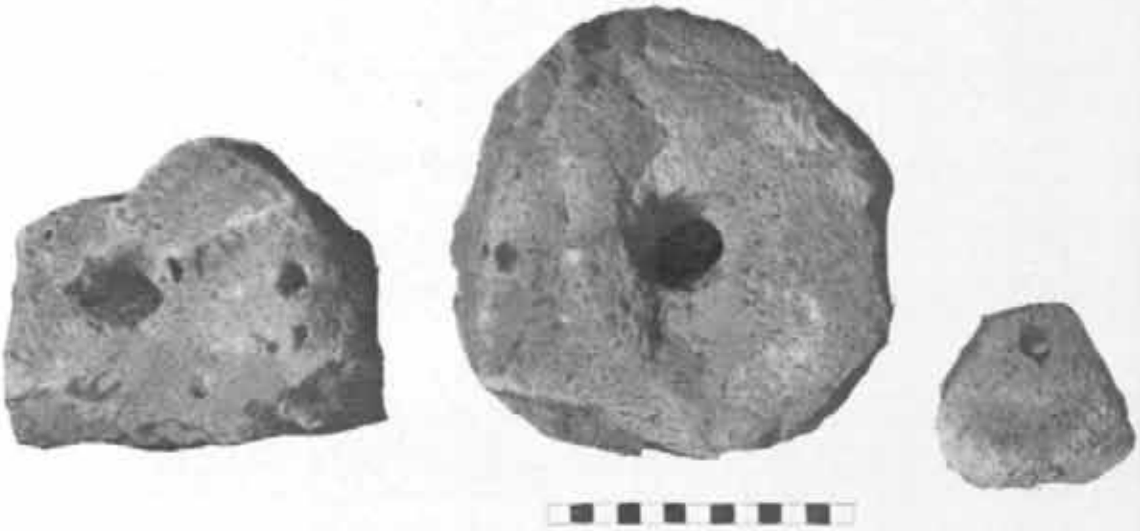


A



B

Lothal : A, apron wall of public drain ; B, mud-brick houses. *See p.* 10

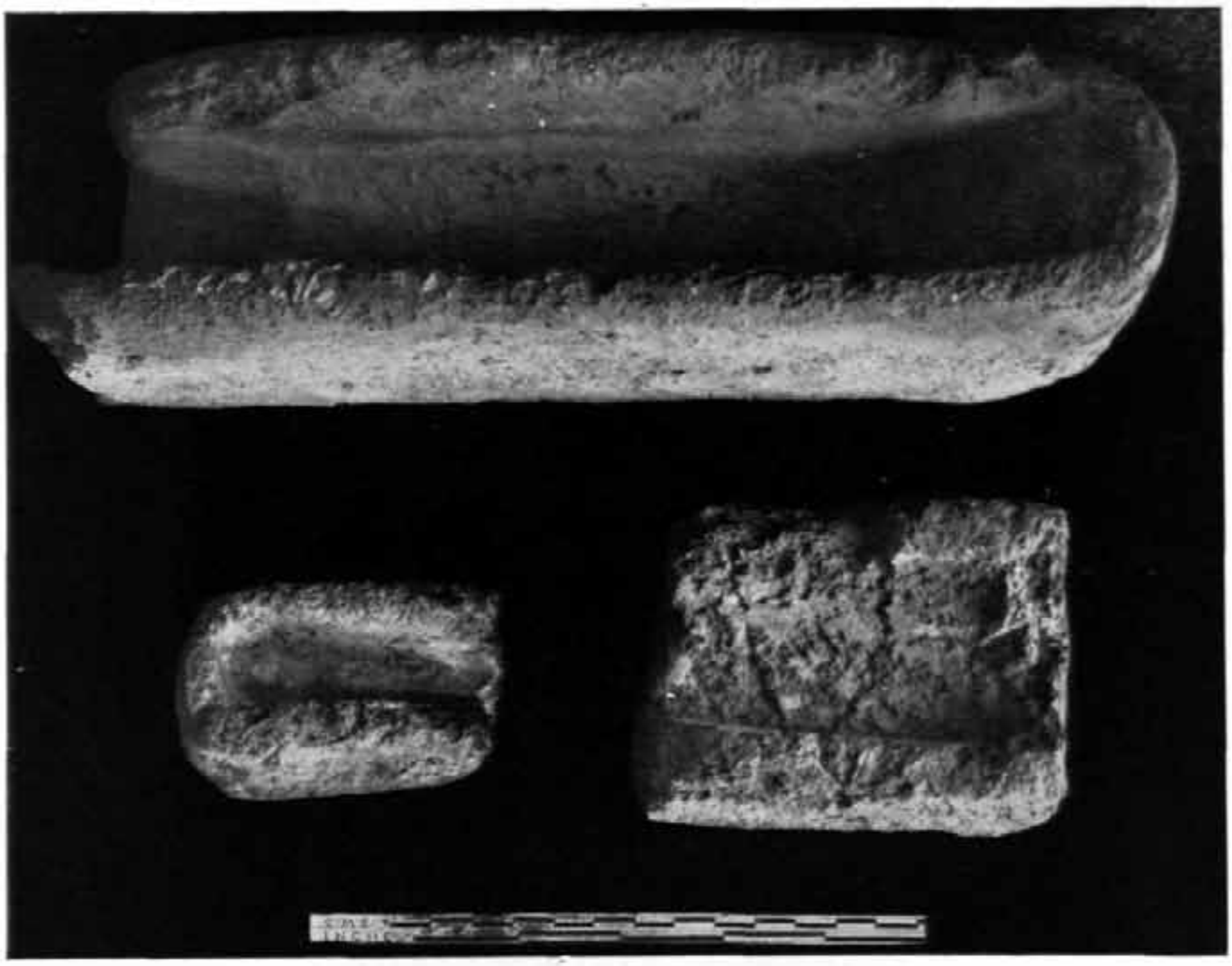


A



B

Lothal : **A**, *anchor-stones from dock ;* B, *copper slag.* *See p.* 10



A

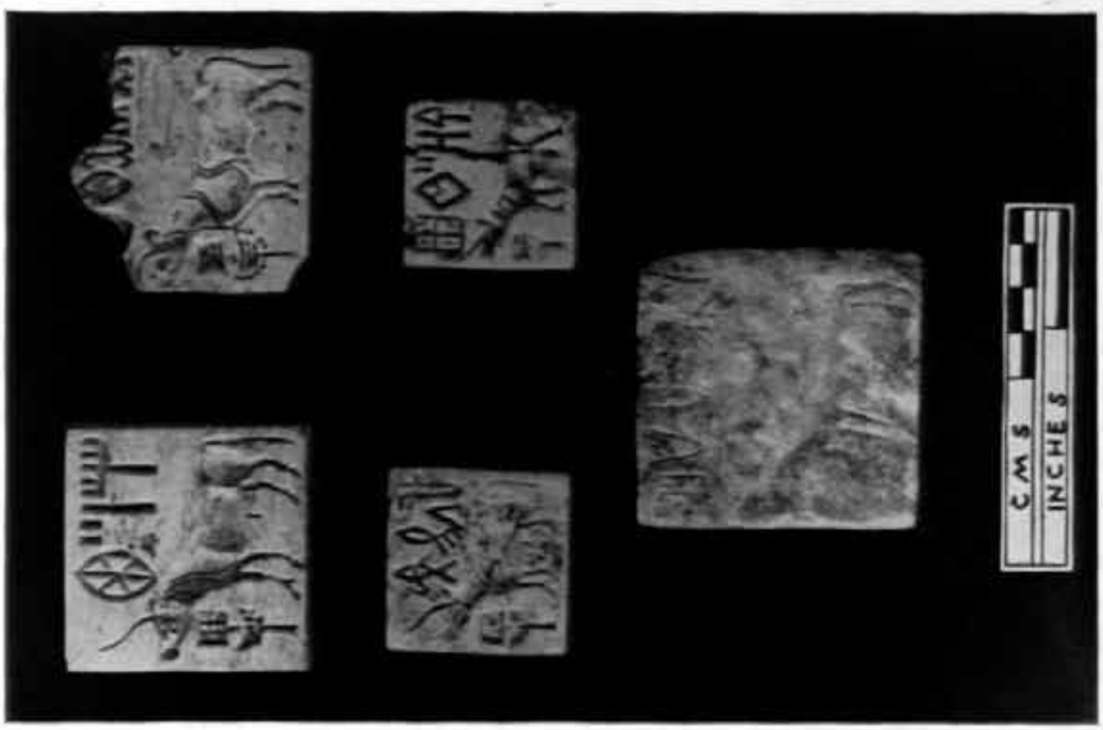


B



C

Lothal : A, *crucibles* ; B, *stone chisel* ; C, *terracotta ram* (1/1)' *See p.* 10



A



B



C

Lothal : A, *steatite seals* ; B, *Persian Gulf seal* (1/1) ; C, *terracotta sealings*. *See p.* 10



A



B

Nagal : A, *microliths* ; B, *general view of main cutting*. *See*, *p*. 11





A B

Nagal : A, *section of trench* ; B, *section showing erosional and sandy layers.* *See p.* 12

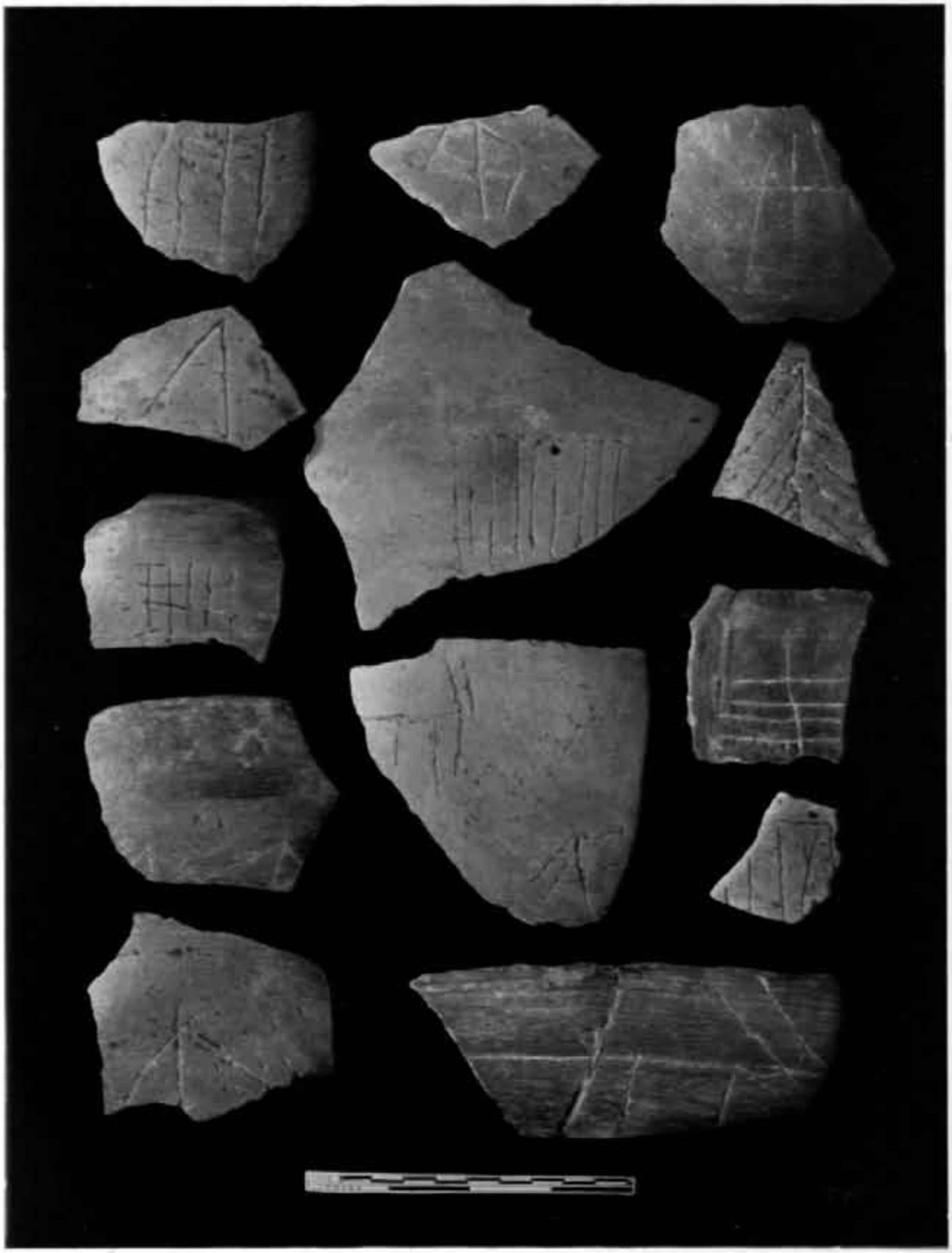


A



B

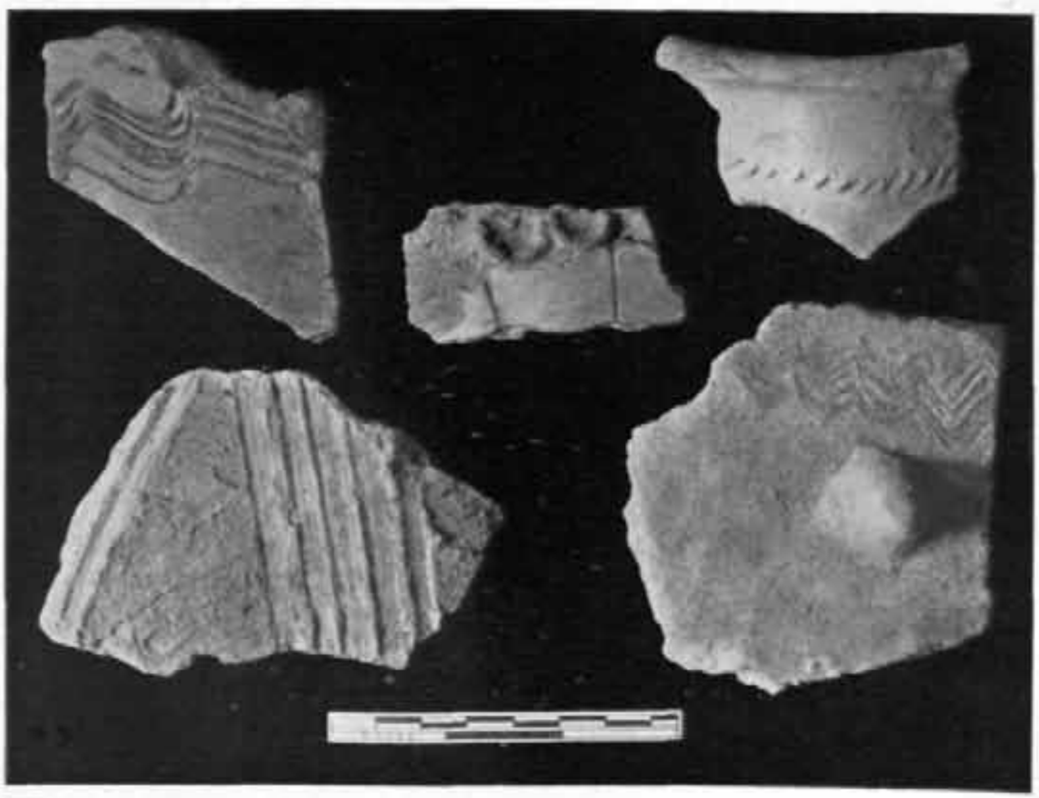
Nagal : A, *dyke and ditch in main cutting* ; B, *circularly-arranged post-holes.* *See p.* 12



Nagal: pottery with graffiti. *See p.* 11



A



B

Nagal : decorated sherds. *See pp.* 11 *and* 12



A

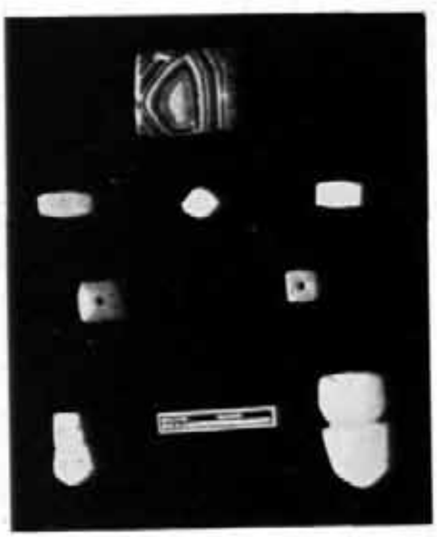


B

Nagal: A, bone points; B, ivory combs. See pp. 11 and 12



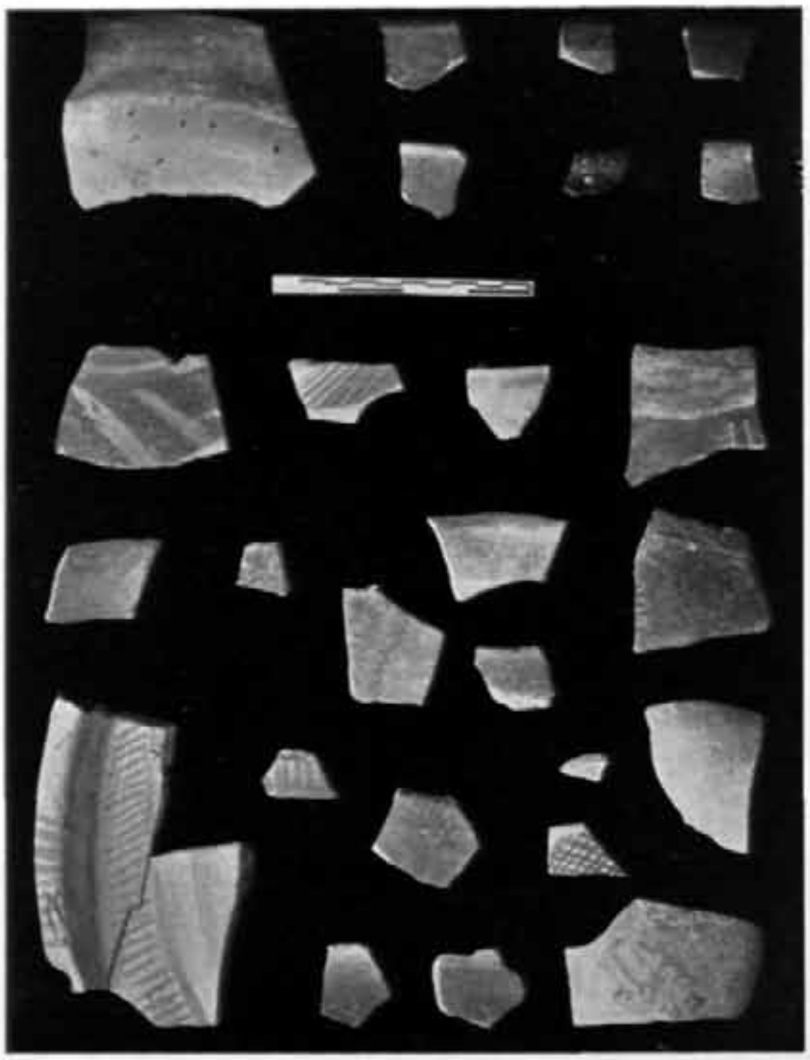
A





B C

Nagal : A, *terracotta animal figurines* ; B, *beads* : C, *etched beads*. *See p.* 12



A

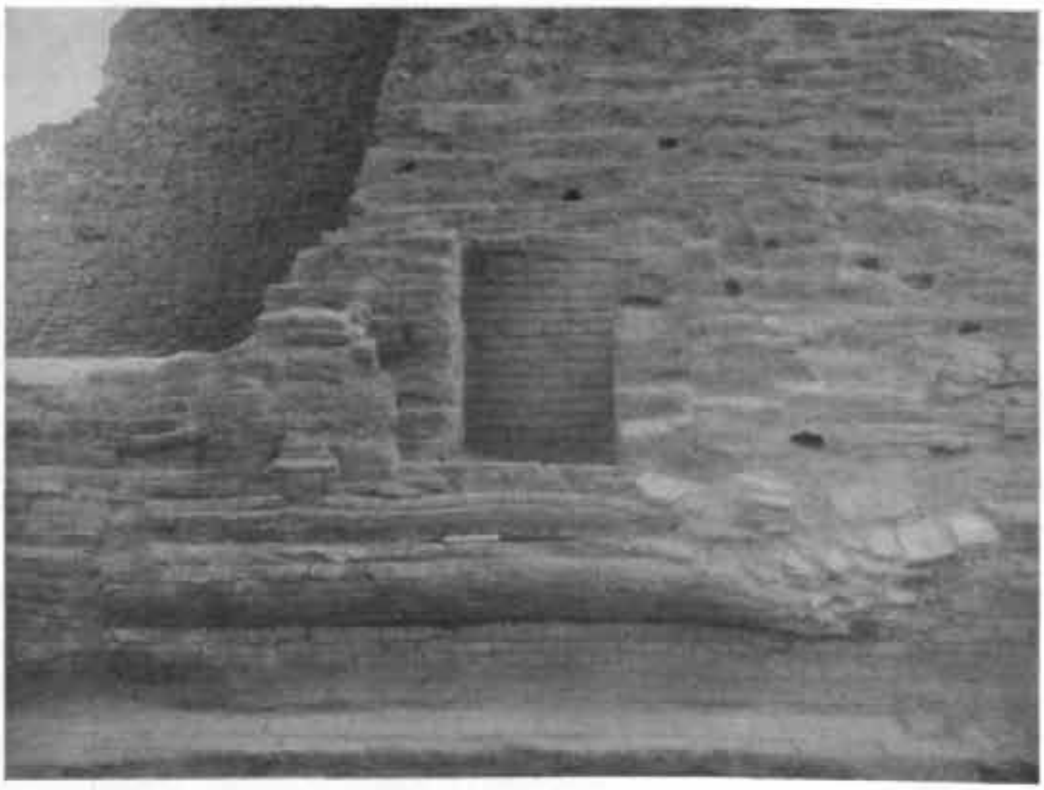


B

A, *Warthan : pottery ;* B, *Andhi : pottery and microliths.* *See pp.* 14 *and* 16



A



B

Devnimori : A, *outer wall of vihara showing three phases;* B, *east face of stupa showing niche.* *See p.* 12



A



B

Devnimori : A junction of stupa-drum and second platform ; B. *Shamlaji : fort-wall with river in foreground.*

See p. 13

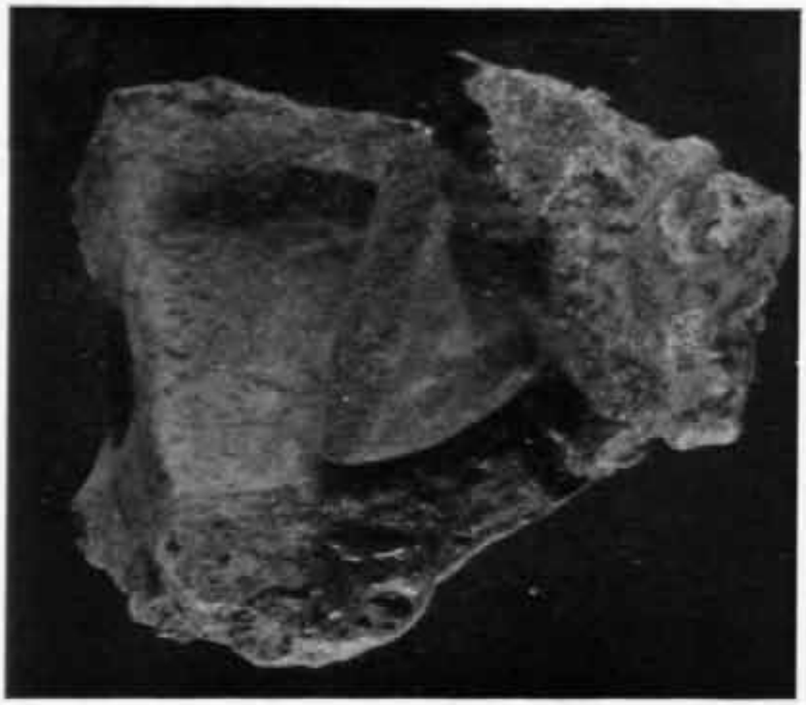


A

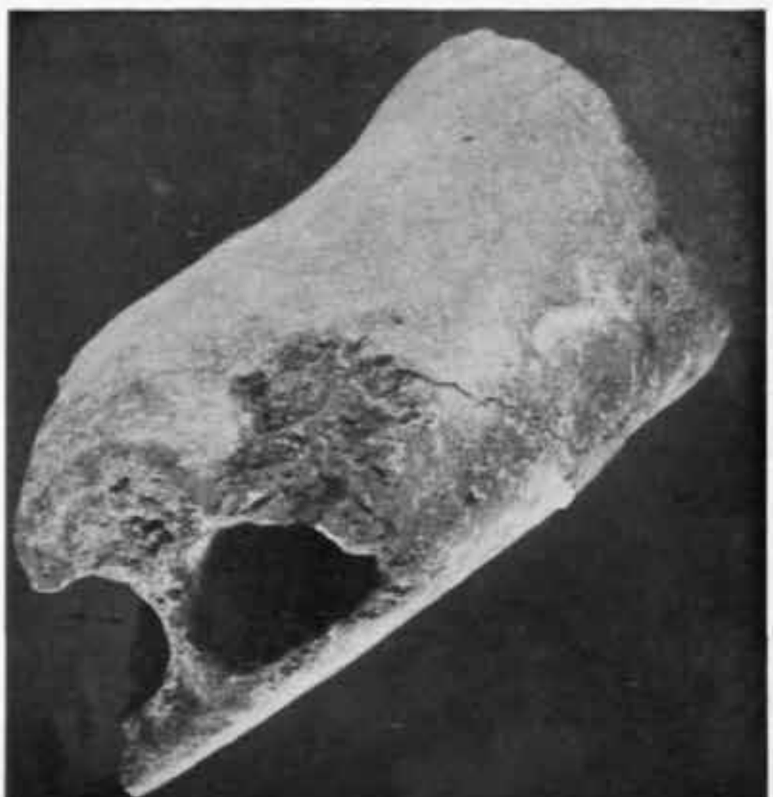


B

Shamlaji : A, *general view of trench with fort-wall in background* ; B, *fort-wall and underlying structure of Phase I*. *See p.* 14



A



B

Shamlaji : A, *crucible with lump of copper* (*ht*. 4·4″) ; B, *tuyère* (5·25″ × 2·25″). *See p*. 14



A



B

Burzahom : A, *dwelling-pit* ; B, *dwelling-pit with a conical stone on the floor*. *See p.* 17



A

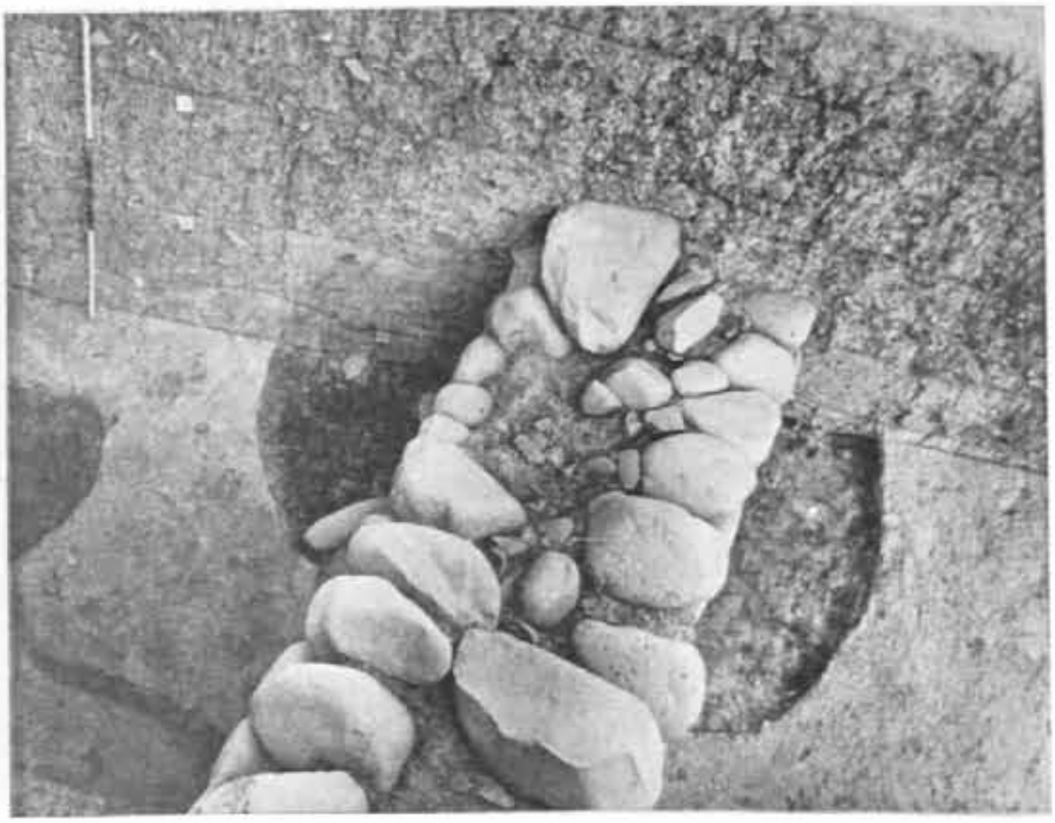


B

Burzahom : A, *dwelling-pit and floor-level of Phase* 2 : B, *dwelling-pit with stone hearth, storage-pits and post-holes in foreground.* *See p.* 19



A



B

Burzahom : A, *successive floor-levels of Phase* 2 ; B, *wall of Phase* 3 *over a dwelling-pit.* *See p.* 19

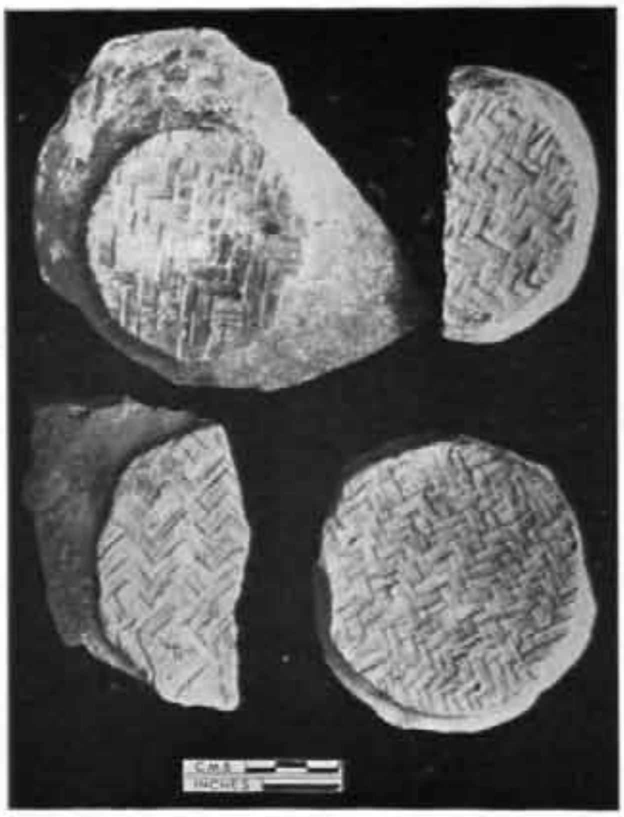


B

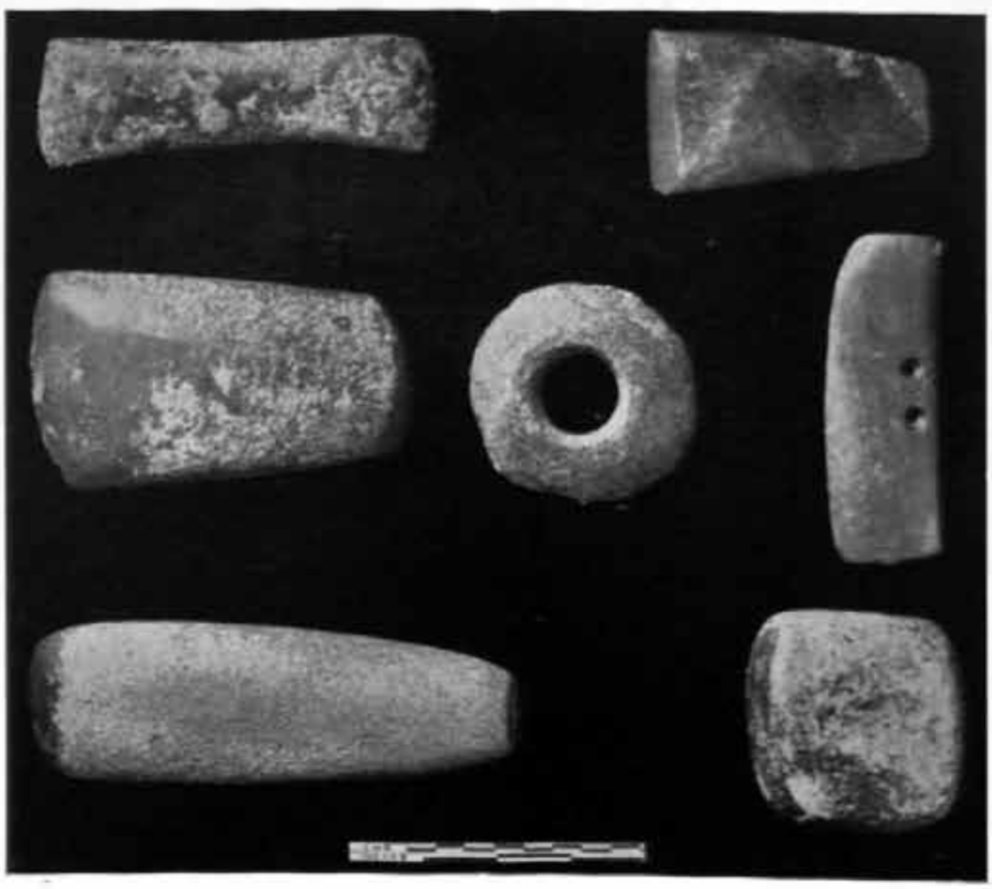


A

Burzahom : polished bone tools. *See p.* 19

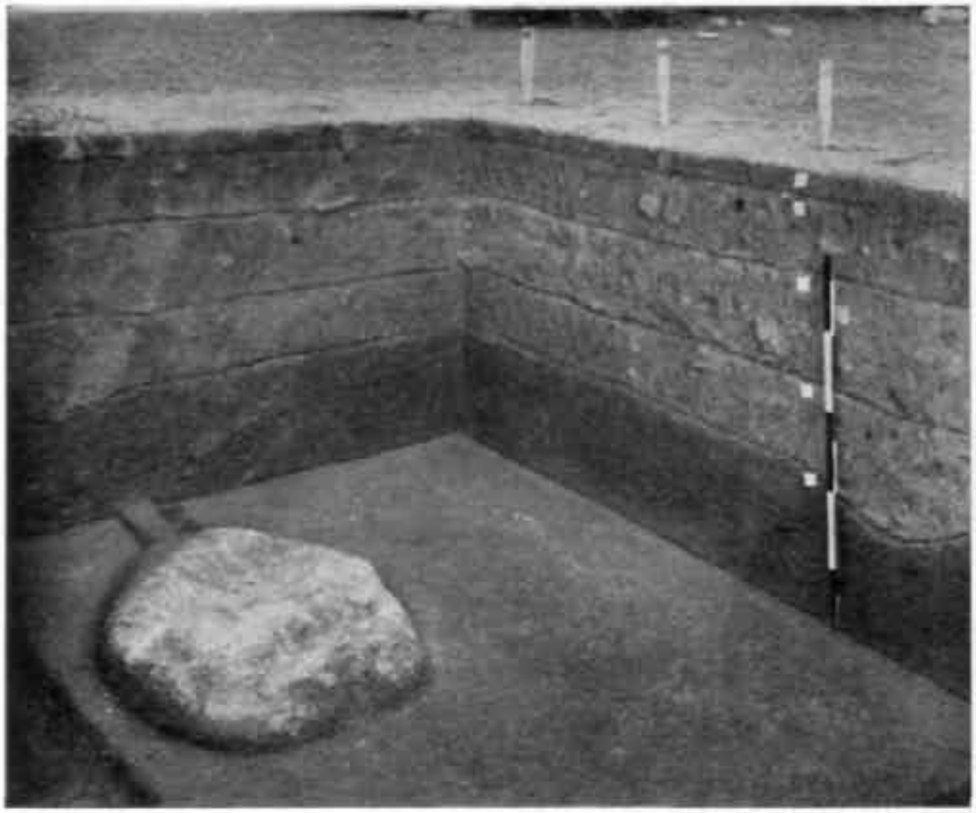


A



B

Burzahom : A, *pottery with mat-impressions* : B, *stone objects.* *See pp.* 19 *and* 21

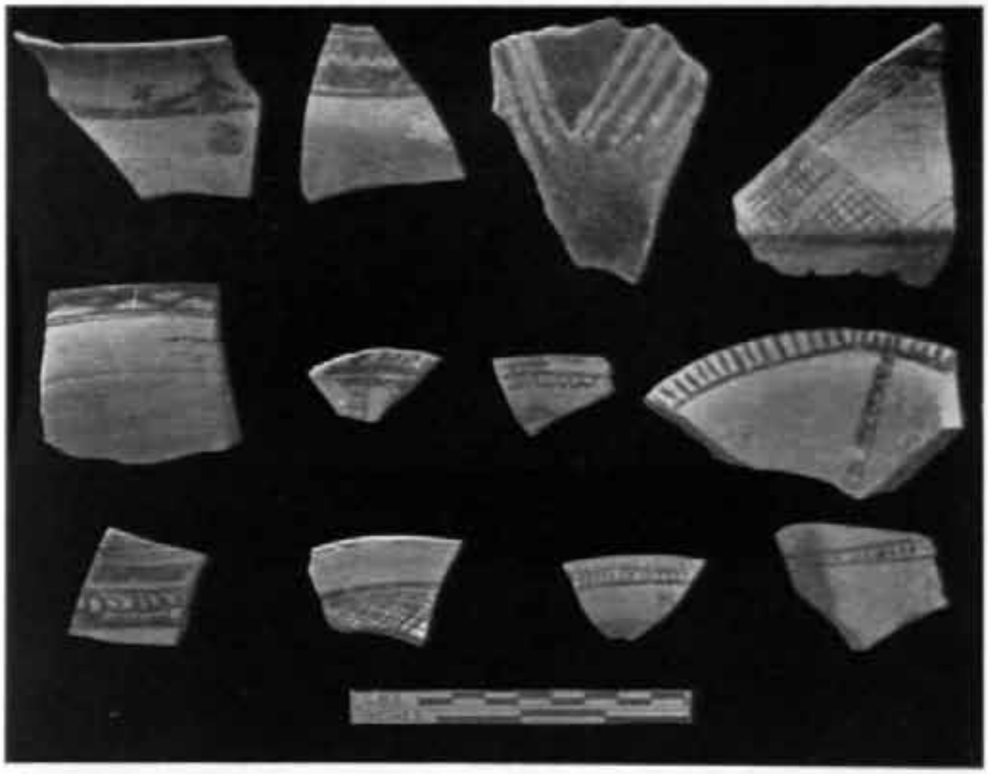


A

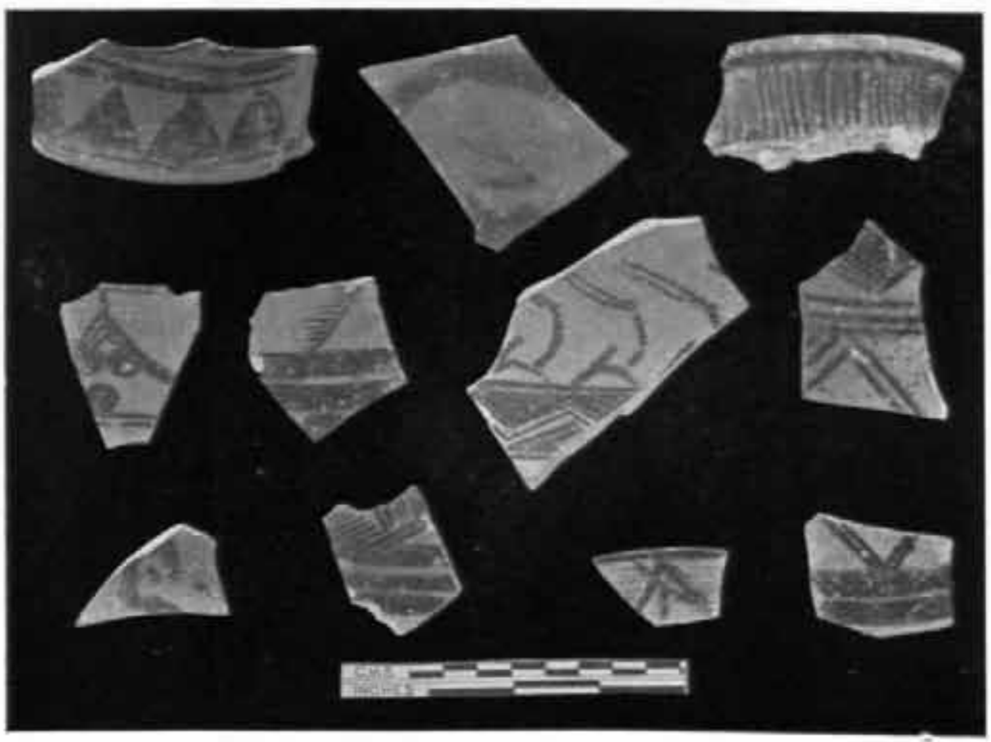


B

Eran : A. fire-place, and B. microliths, Period I. *See p.* 25

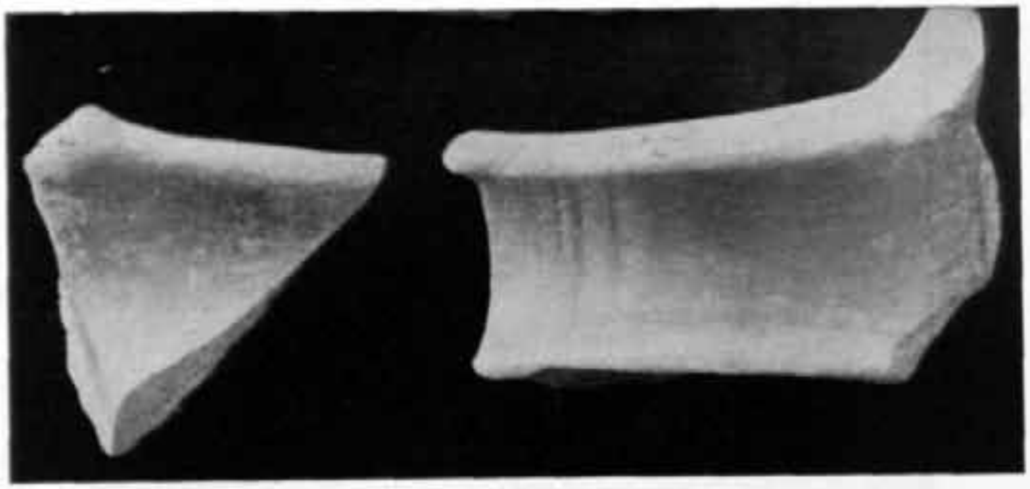


A

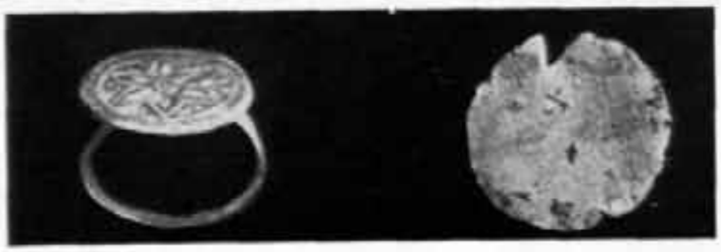


B

Eran: pottery, Period I. See p. 25



A

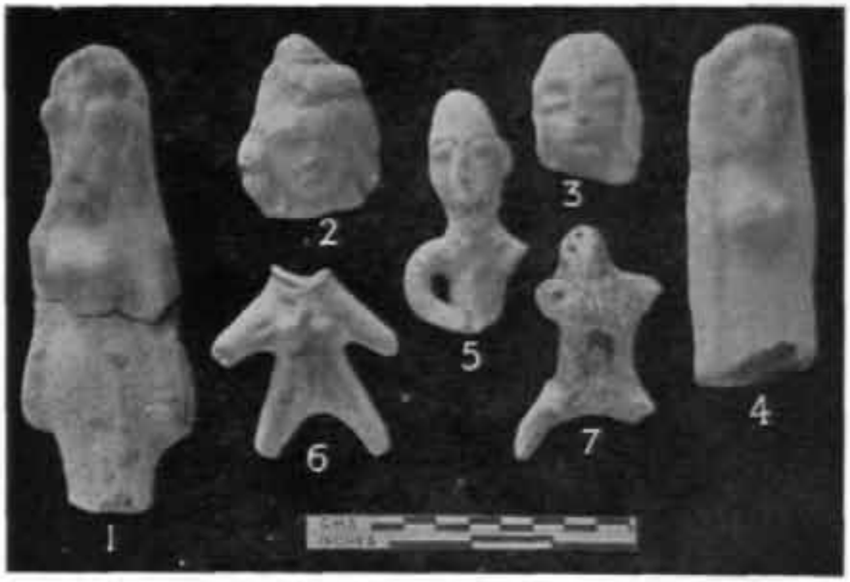


B

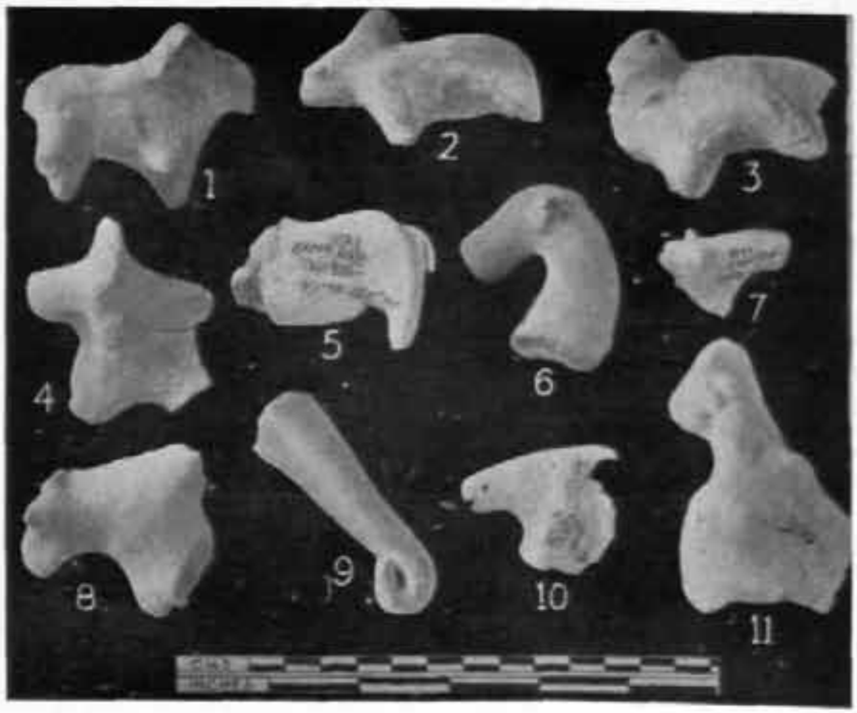


C

Eran : A, *channel-spout* (1/1) ; B, *signet-ring and a gold piece* (3/2) ; C, *copper objects.* *See p.* 25



A



B

Eran : A, *terracotta human, and* B, *animal figurines. See p.* 25

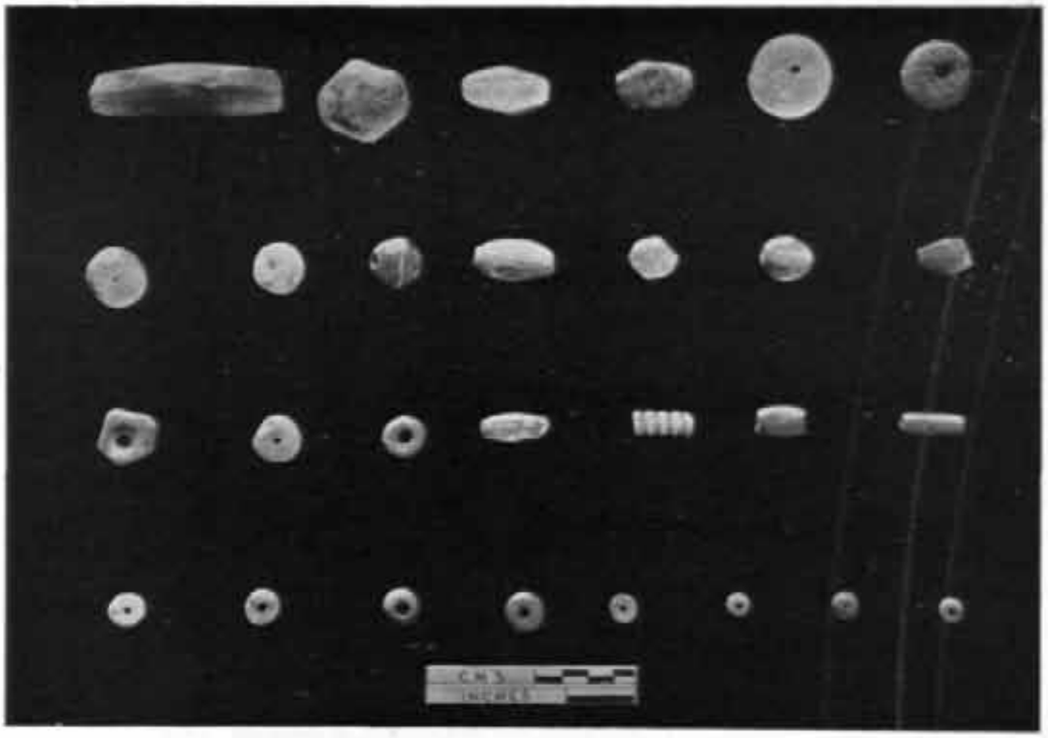


A



B

Tirukkambuliyar : A, *section of Trench* 1 *;* B, *circular structure, Period III.* *See p.* 28

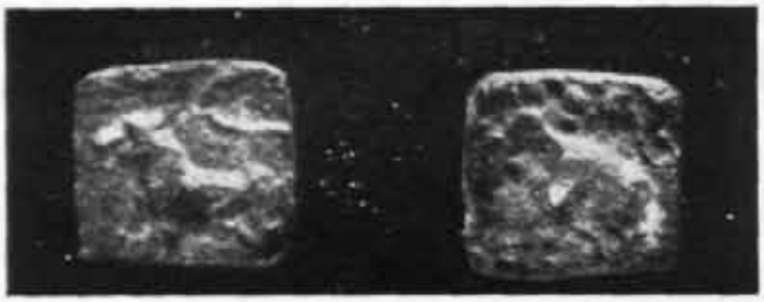


A



B

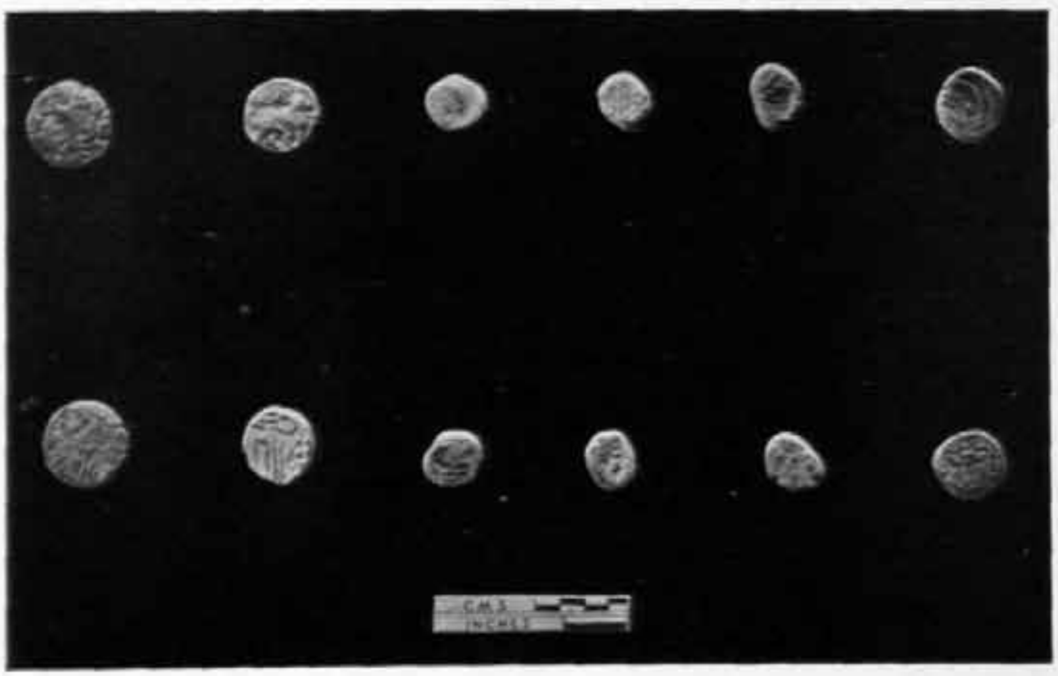
A, *Vanagiri, beads* ; B, *Vanagiri and Neidavansal : copper coins.* *See p.* 26



A

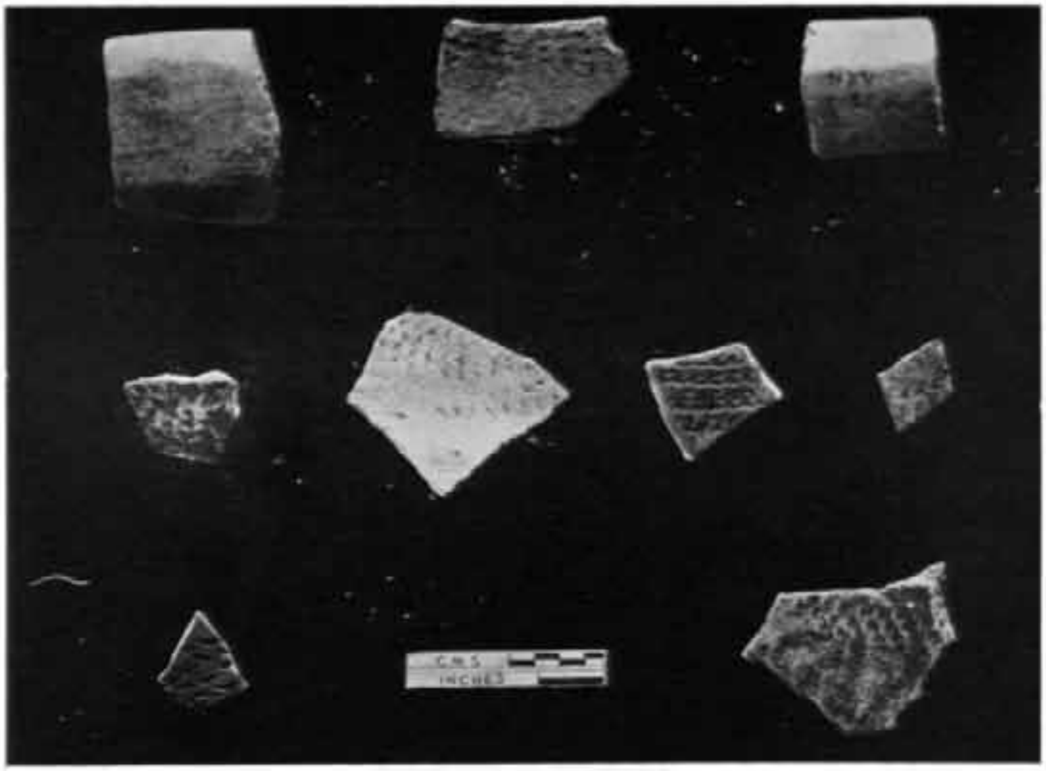


B



C

A, *Vanagiri : square copper coins* ; B, *Vellaiyan-Iruppu : Roman coin* ; C, *Kaveripattinam : copper coins*. *See p.* 27



A

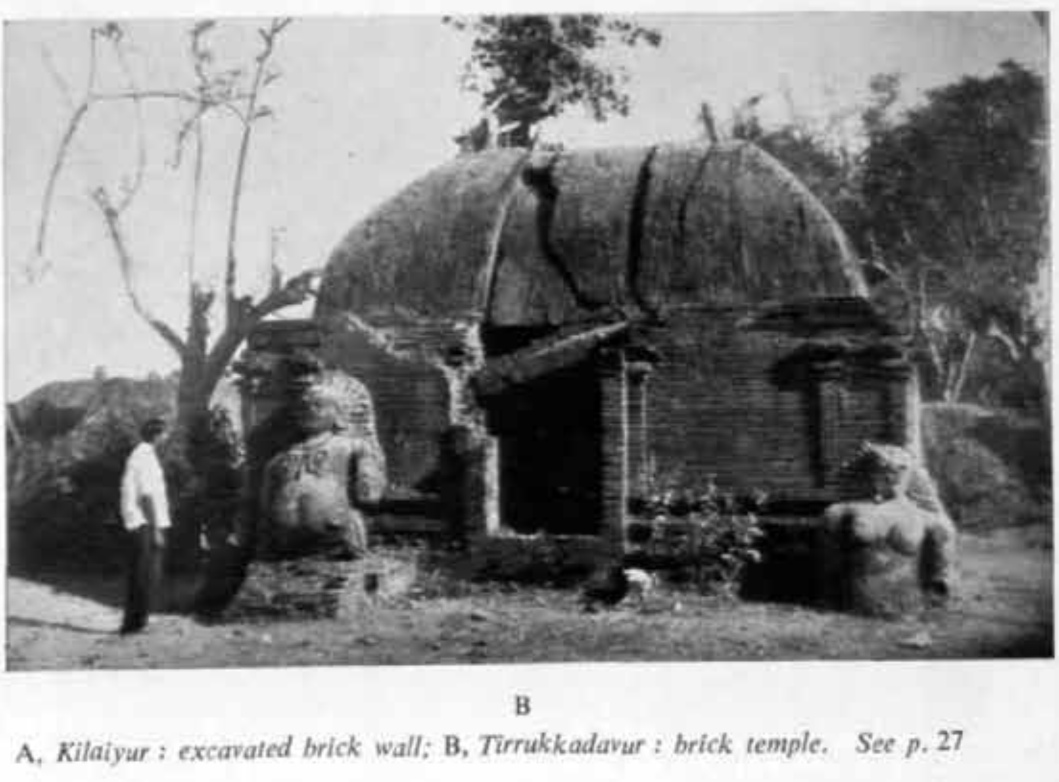


B

A, *Neidavasal and Manigramam : Rouletted Ware ;* B, *Sayavanam etc., : terracotta figurines.* *See p.* 27



A



B

A, *Kilaiyur : excavated brick wall;* B, *Tirrukkadavur : brick temple.* *See p.* 27

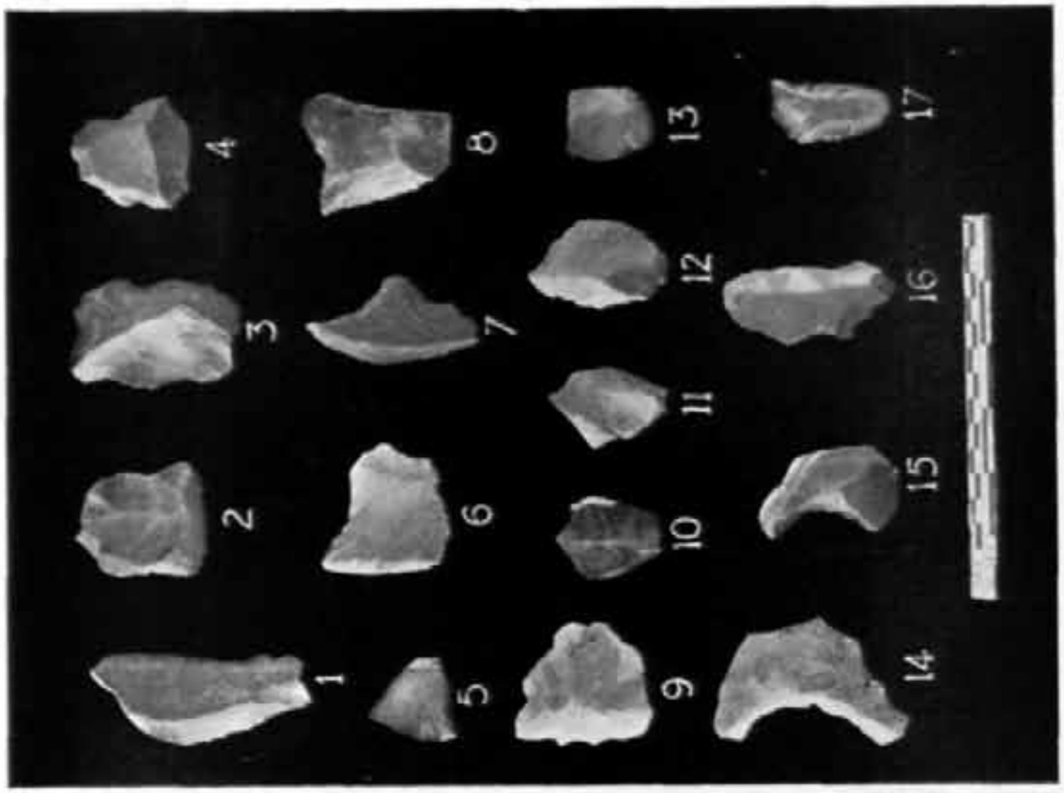


A



B

A, *Bheraghat* : *fossil tusk of Elephas antiquus* ; B, *river Sher* : *ramus of Bos namadicus*. *See p.* 22

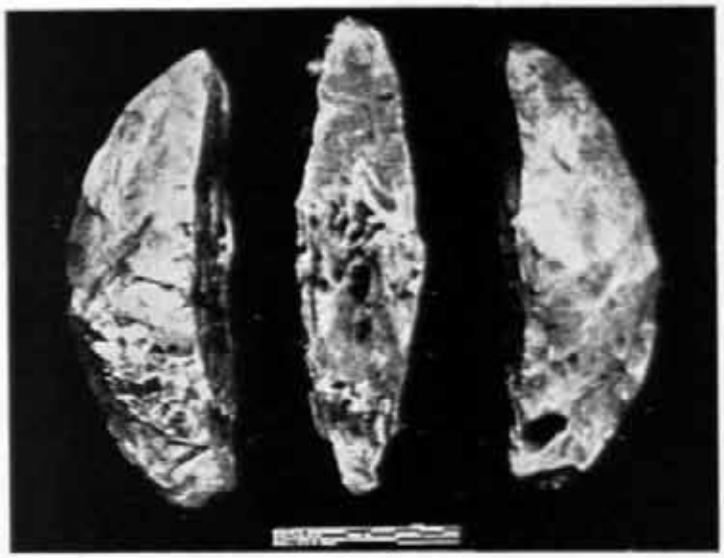


B

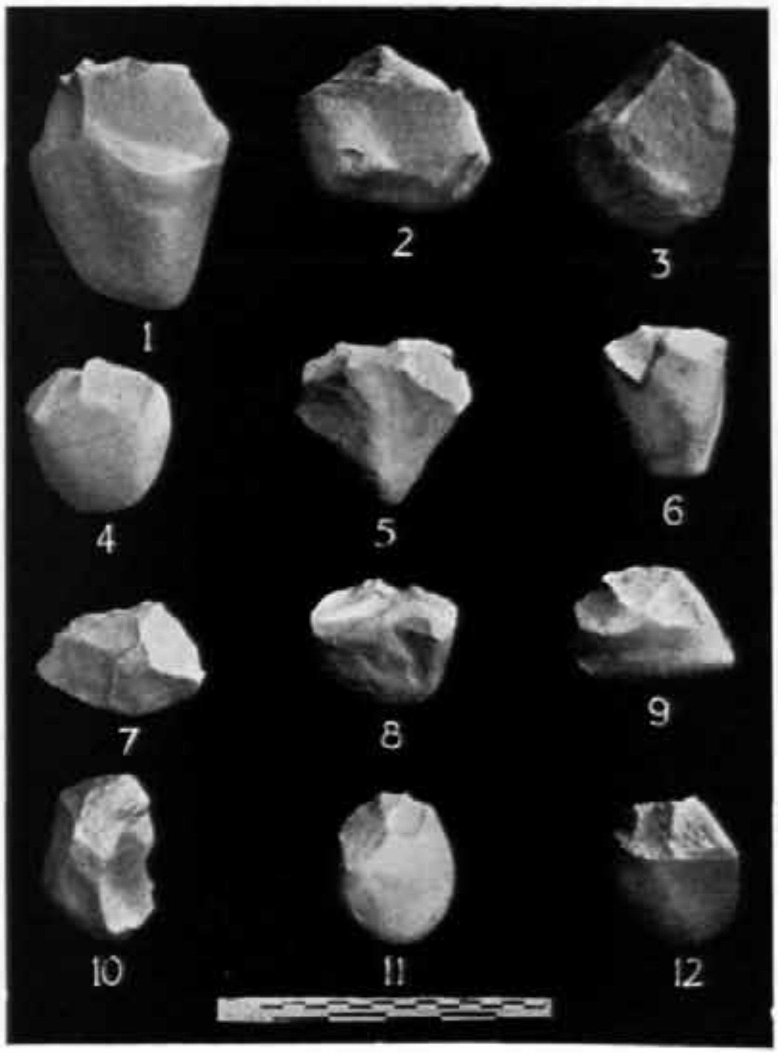


A

Papaniya-Tekdi : A, *rows* 1 *and* 2, *Early Stone Age tools* ; *rows* 3 *and* 4, *Middle Stone Age tools*; B, *tools of blade-burin industry*. *See p.* 30

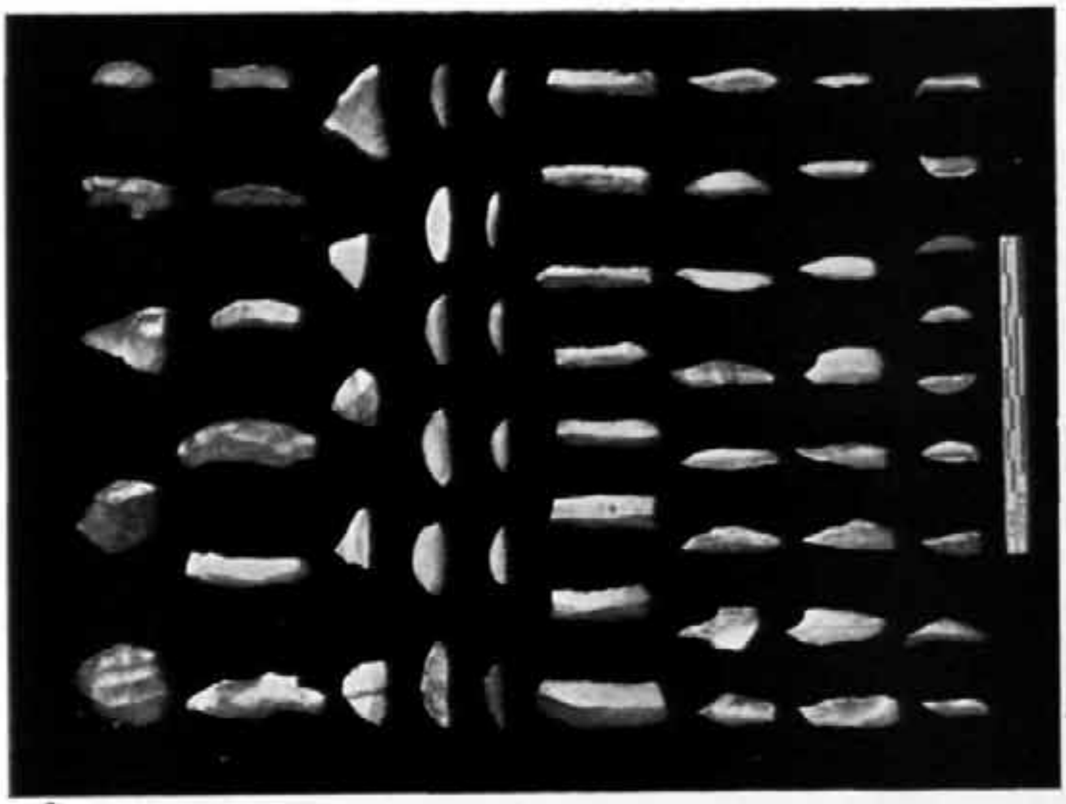


A

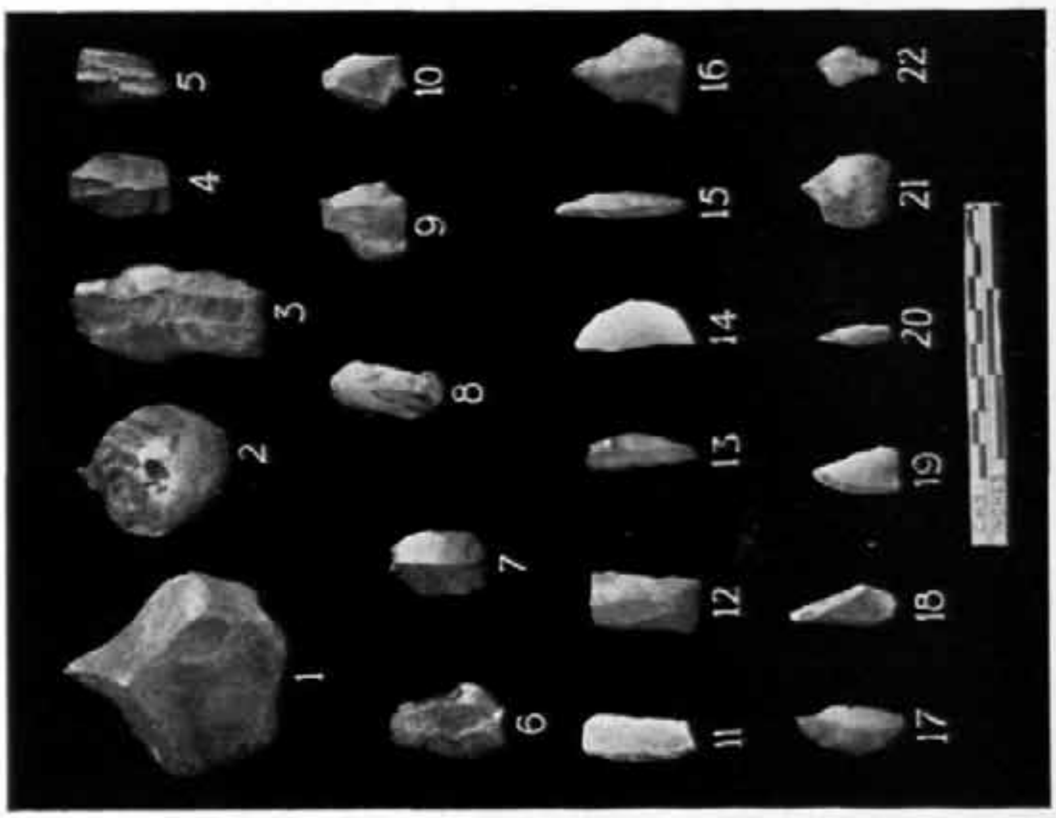


B

A, *Papamiya-Tekdi : large side-scraper ;* B, *Kottur* (1 *and* 2), *Timram* (3), *Abanpalli* (4, 5 *and* 12), *Wangepalli* (6-9), *Mudumtorna* (10 *and* 11) *: unifacial and bifacial pebble tools.* *See p.* 30



B



A

A, *Mahagaon-Burzruk* (1), *Wangepalli* (2-10), *Dhanora* (11-16), *Warkekasa* (17-22), and B, *Papamiya-Tekdi* : *microliths*. *See p.* 30



A

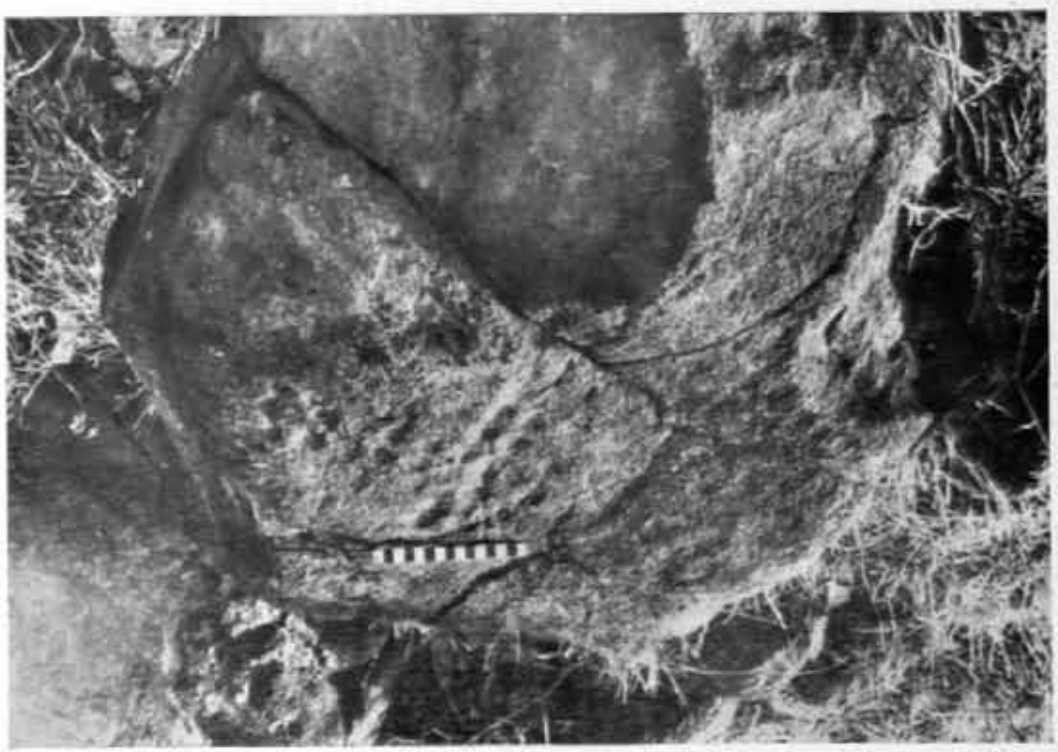


B

A, *Bhadne : cliff-section on the Kan near Sakri ; B, Chaupala : fossil-scapula in silt on the Sukar-nala.* See p. 32



A



B

Junapani : A, *section through cairn showing rubble-packing and clay heap;* B, *cup-marks on a circle-stone of an unexcavated megalith.* *See p.* 33

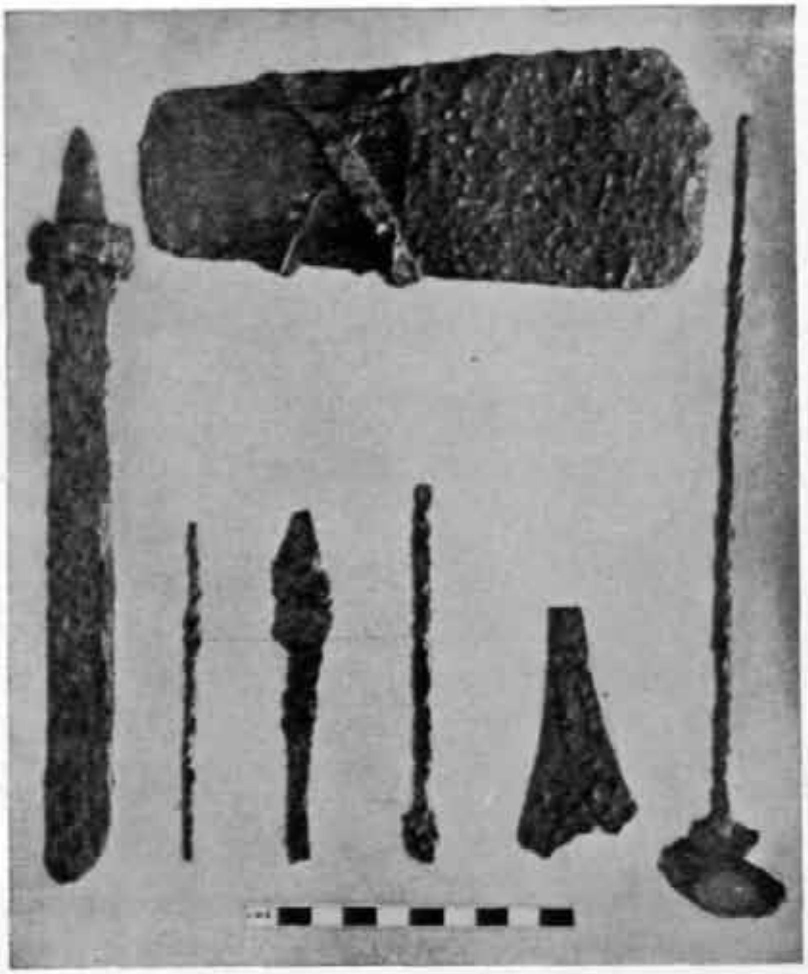


A



B

Junapani : A, *Megalith* 1 *after excavation showing burial-pits A, B, C and D:* B, *Megaliths* 1 (*in foreground*) *and* 3.
See p. 33



A



B

Junapani : A, *iron objects ;* B, *stone pestle.* *See p.* 34



A



B

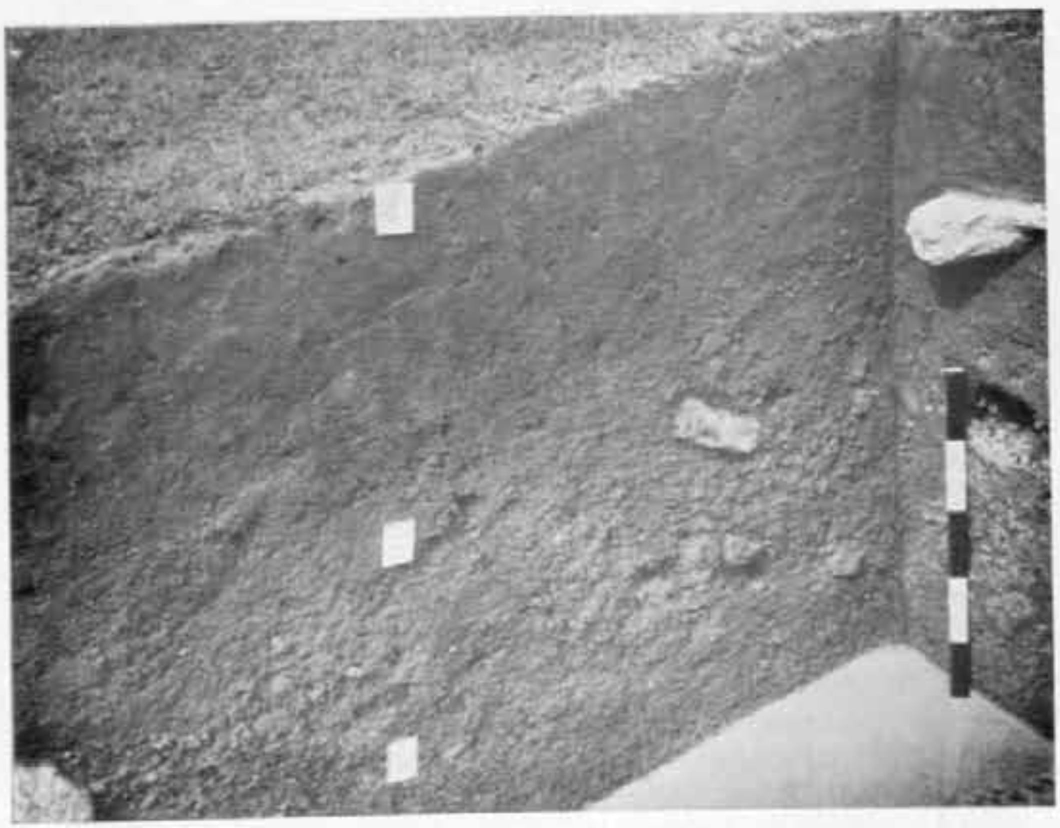


C

Junapani : A, *iron objects ;* B, *copper bell ;* C, *gold objects.* *See p.* 34

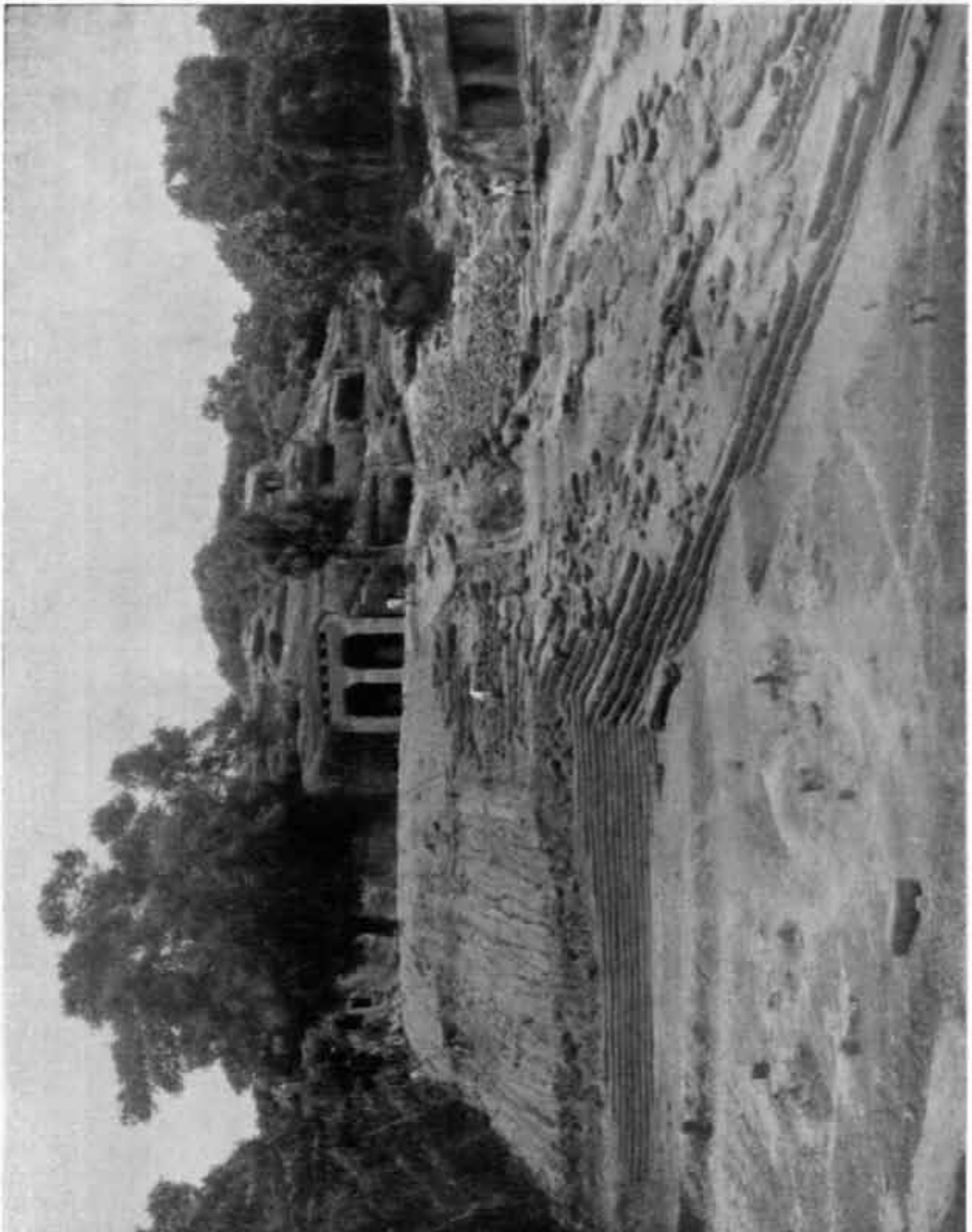


A

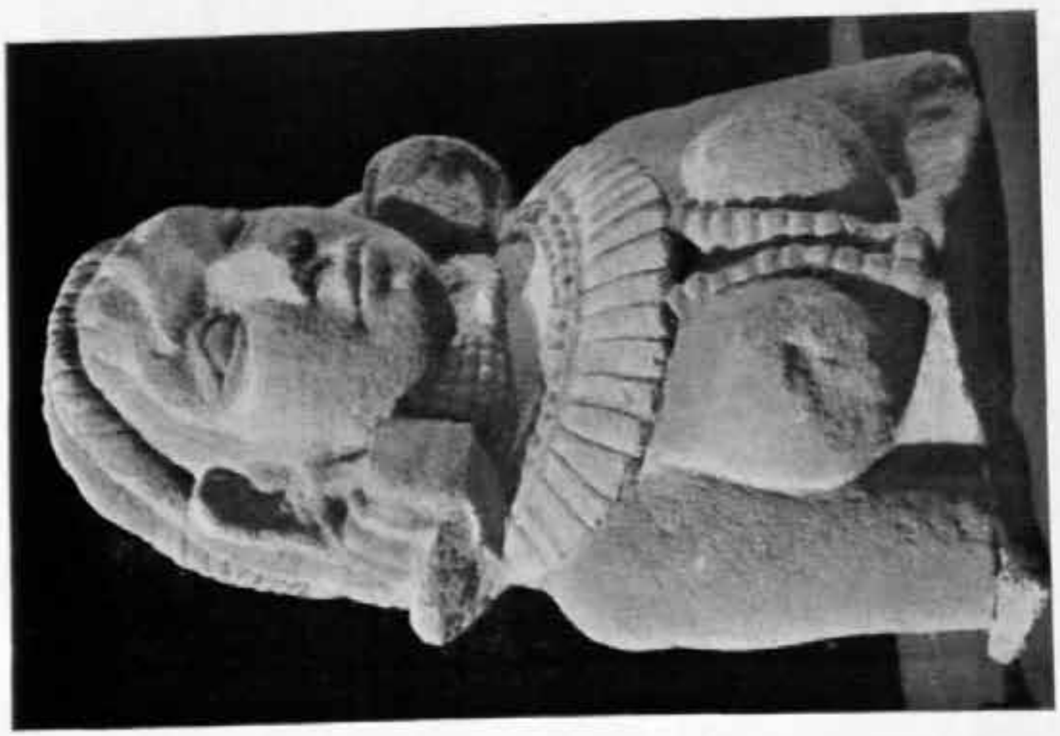


B

A, *T. Narsipur : neolithic burial* ; B, *Kuchai : section of trench.* *See pp.* 35 *and* 36



Udayagiri : excavated ramp and retaining wall. See p. 36

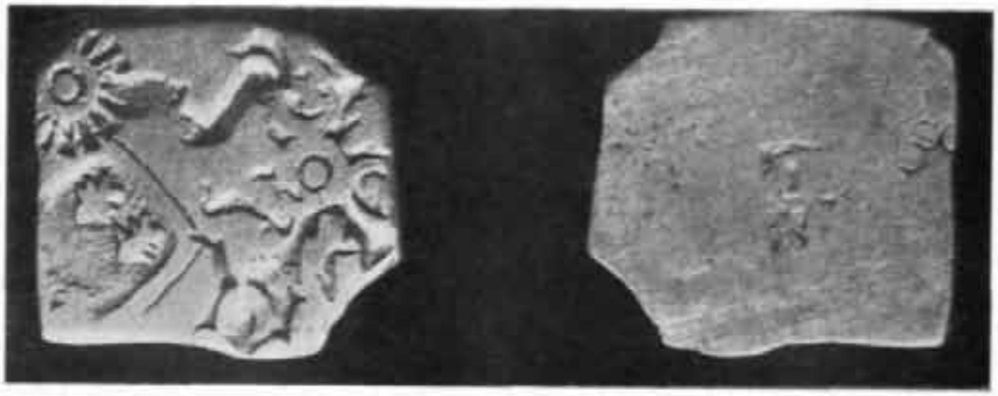


A

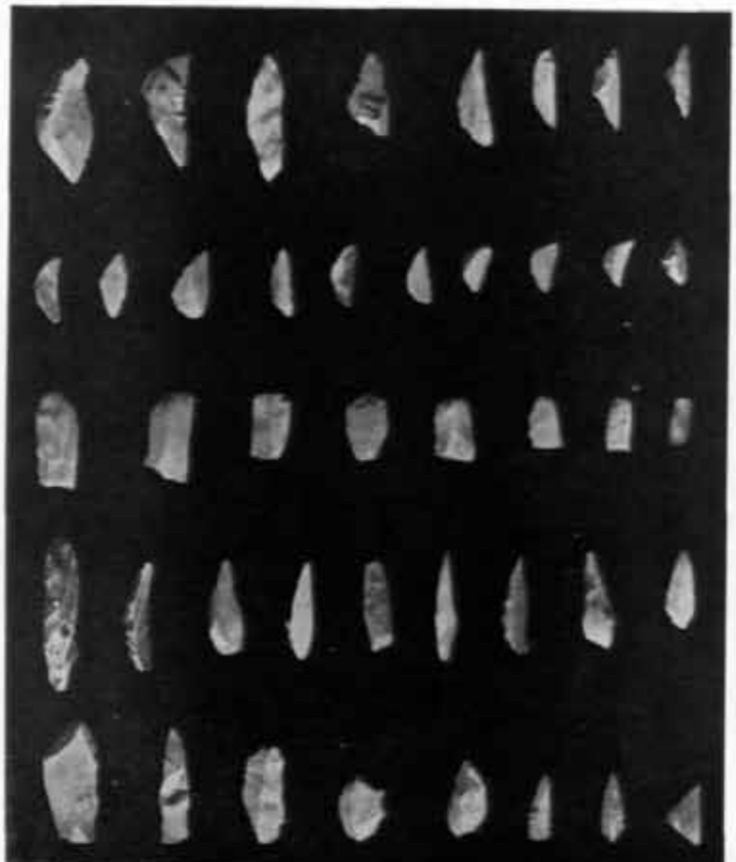


B

Udayagiri : sandstone sculpture (ht. 43 cm.), A, front and, B, back view. *See p. 37*



A

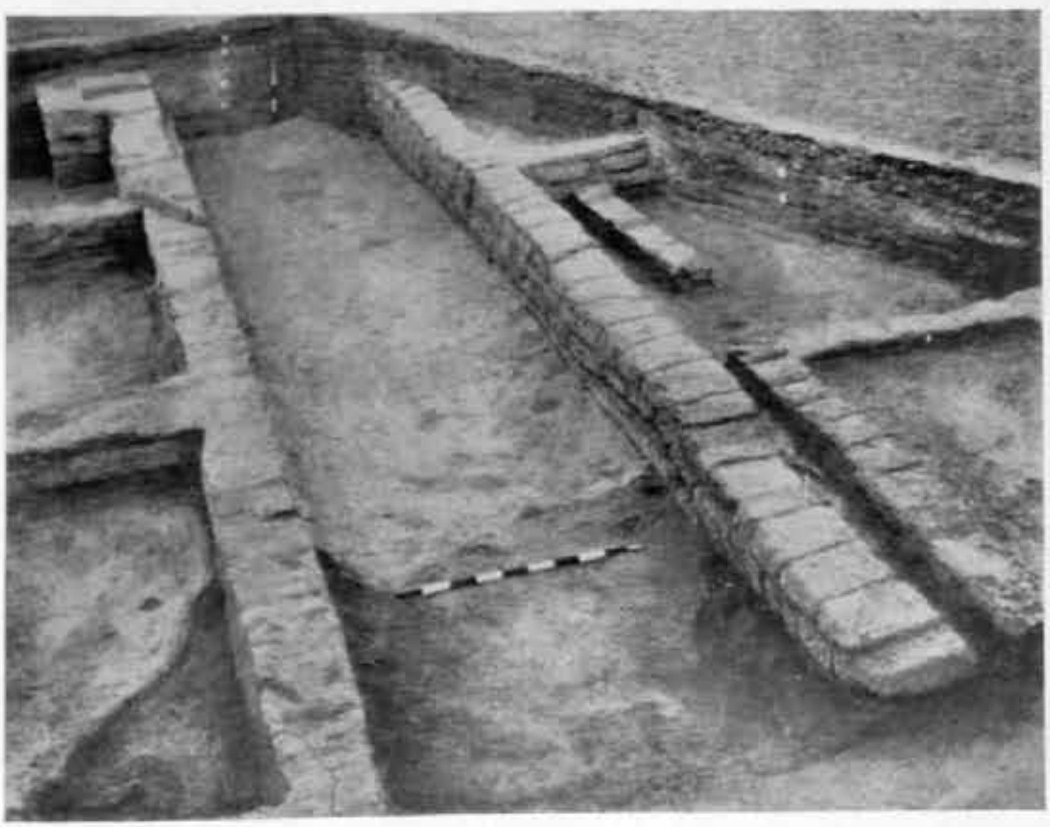


B

Udayagiri : A, *punch-marked coin* (x3); B, *microliths* (½). *See p.* 37

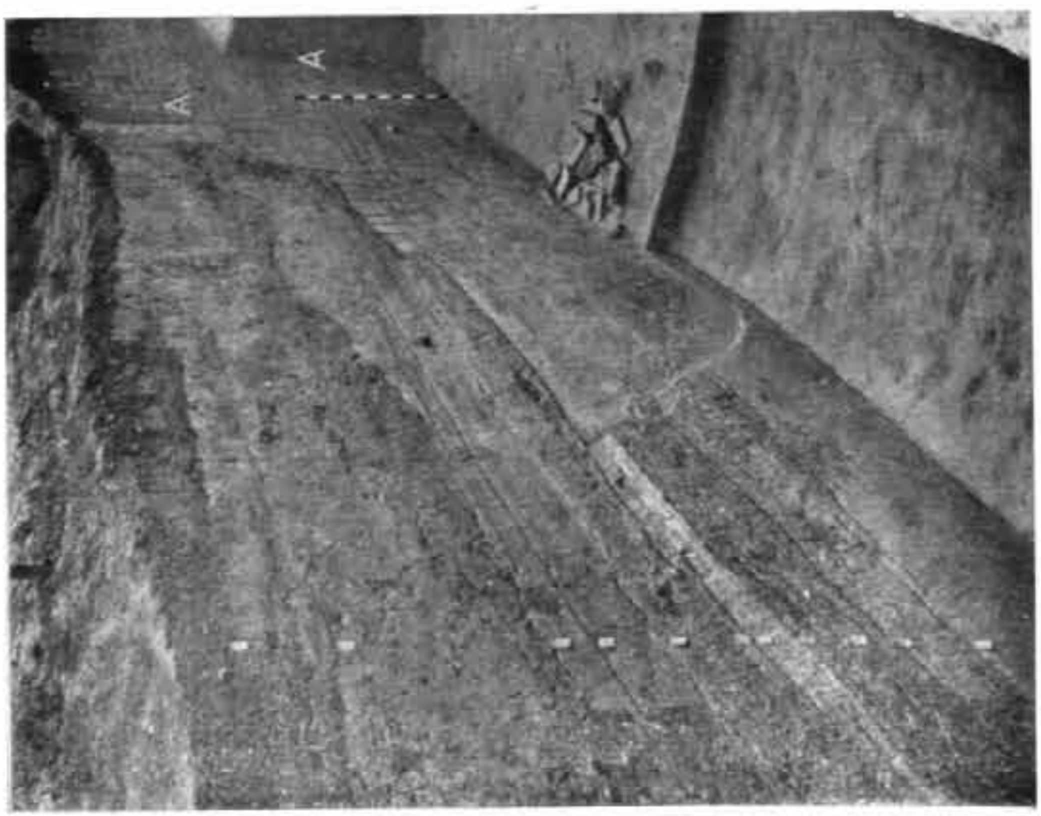


A

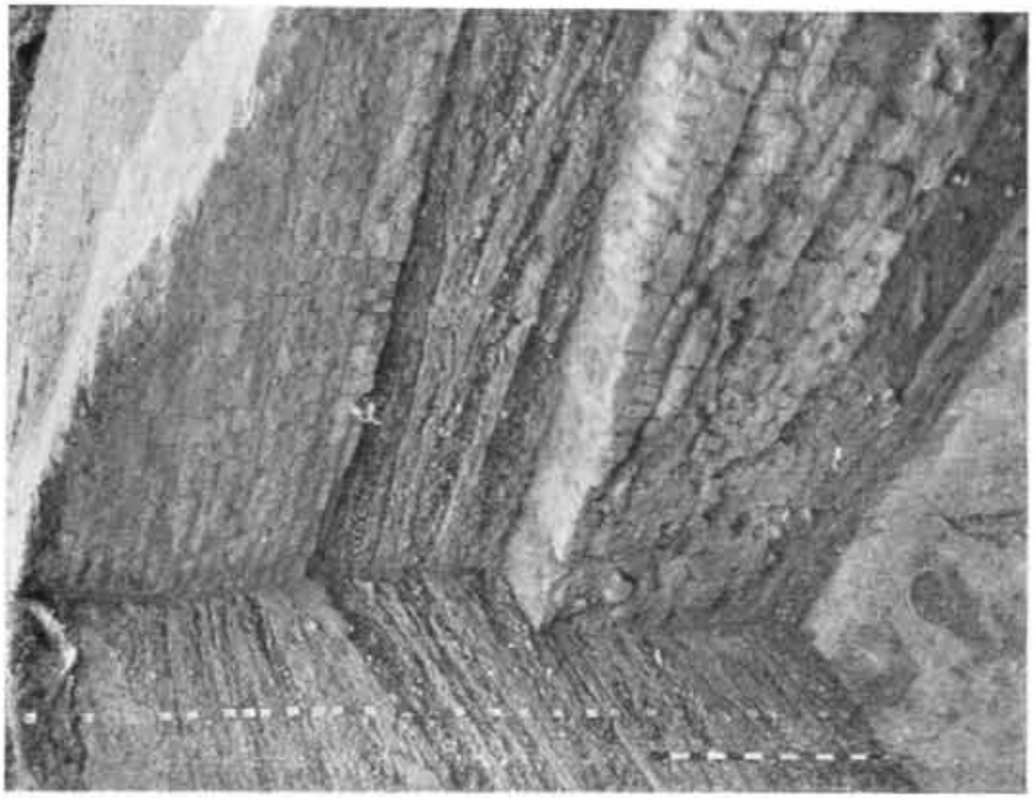


B

Kalibangan : A, *two phases of pre-Harappan mud-brick wall* : B, *a pre-Harappan lane. See p.* 41



A



B

Kalibangan : **A**, *section through mud-brick* ; **B**, *successive levels of buildings and road.* *See pp.* 41 *and* 43



A



B

Kalibangan : A, *baked-brick well* ; B, *covered baked-brick drain.* *See p.* 43



A



B

Kalibangan : A, *road metalled with terracotta nodules* : B, *wooden drain in a street.* *See p.* 44



A



B

Kalibangan : A, *house-drain, and* B, *street-drain, both discharging into soakage jar.*
See p. 44

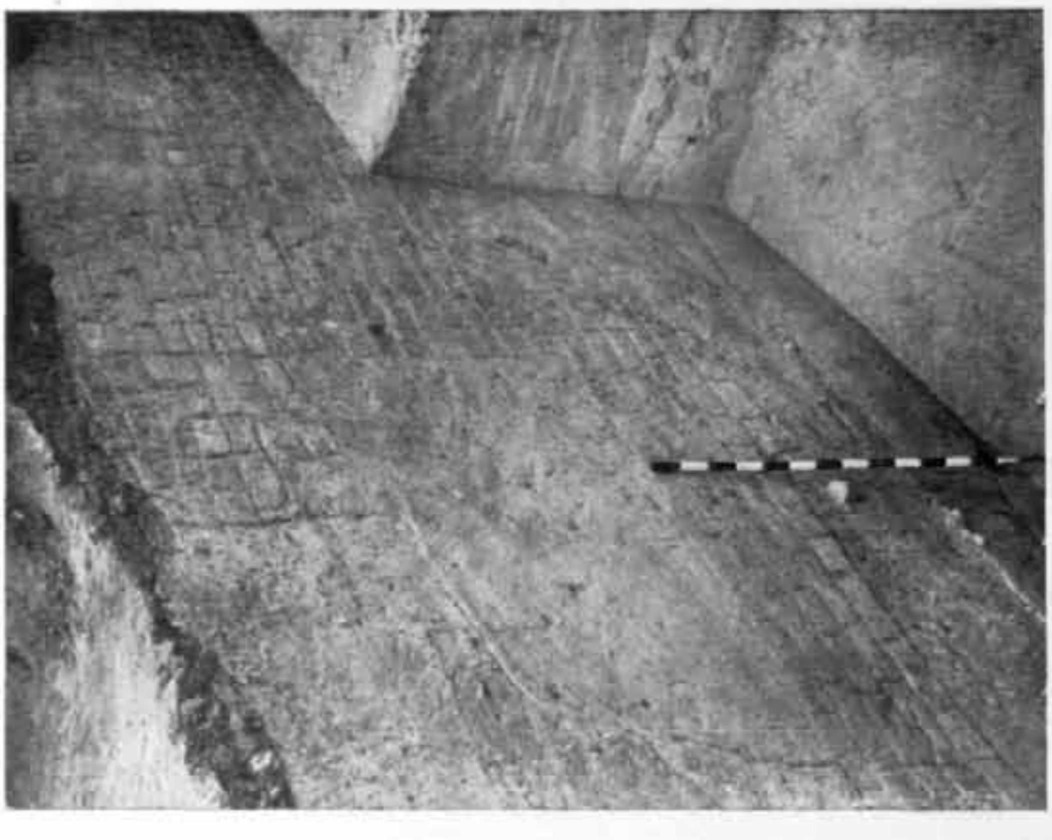


A

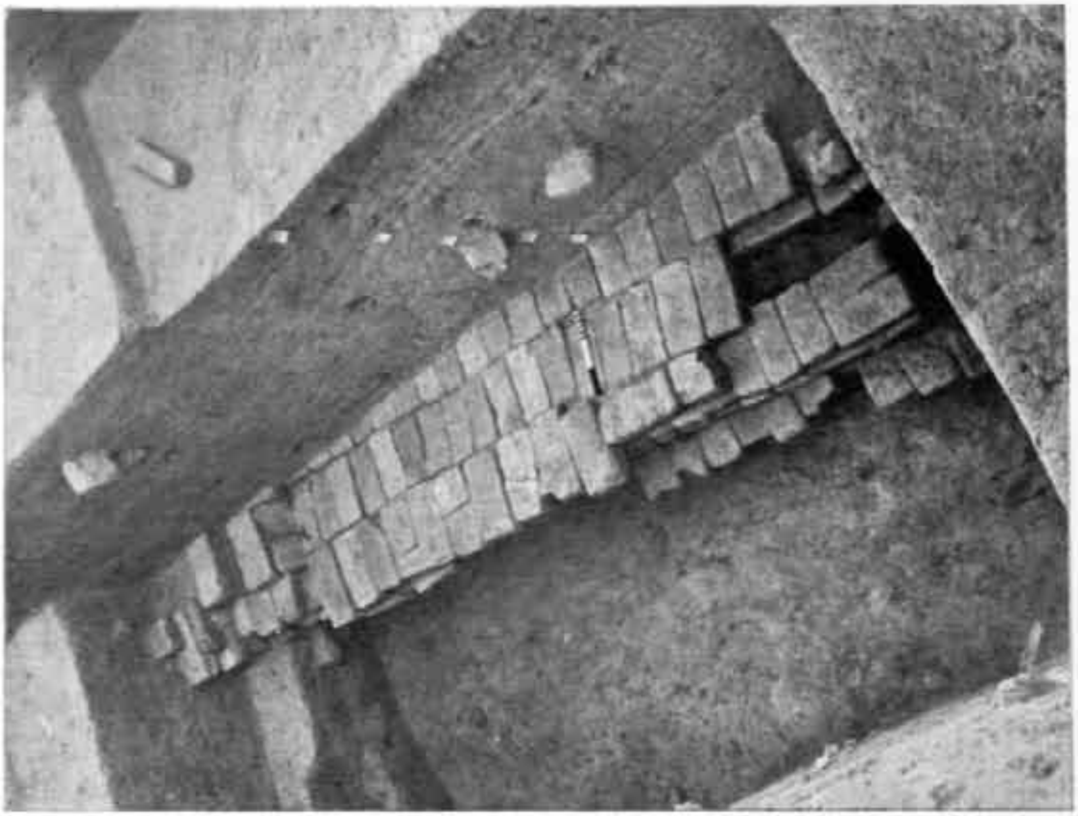


B

Kalibangan : A, *wall of a massive structure facing street, and* B, *its tripartite plan.* *See p.* 44



A



B

Kalibangan : A, *section across mud-brick platform* : B, *covered burnt-brick drain.* *See pp.* 43 *and* 44



A



B

Kalibangan : A, *textile impression on pottery* (*ht.* 6·5 *cm.*) ; B, *seals.* *See p.* 44



A



B

Kalibangan : seals and sealings. *See p.* 44

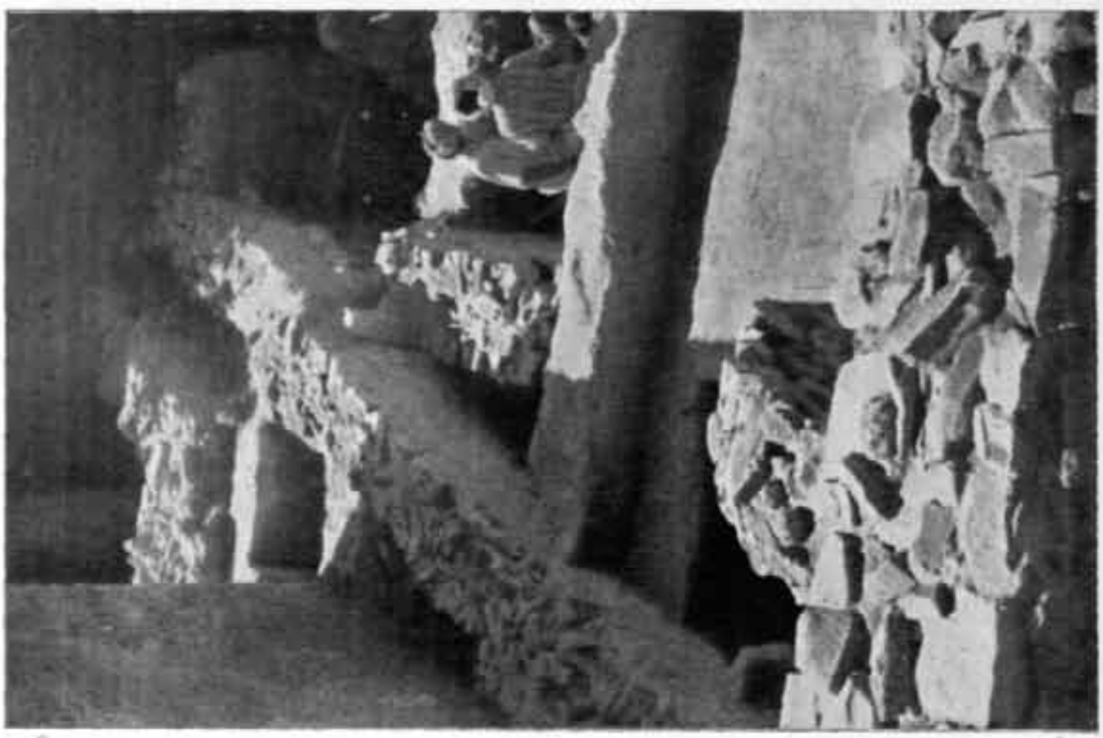


A



B

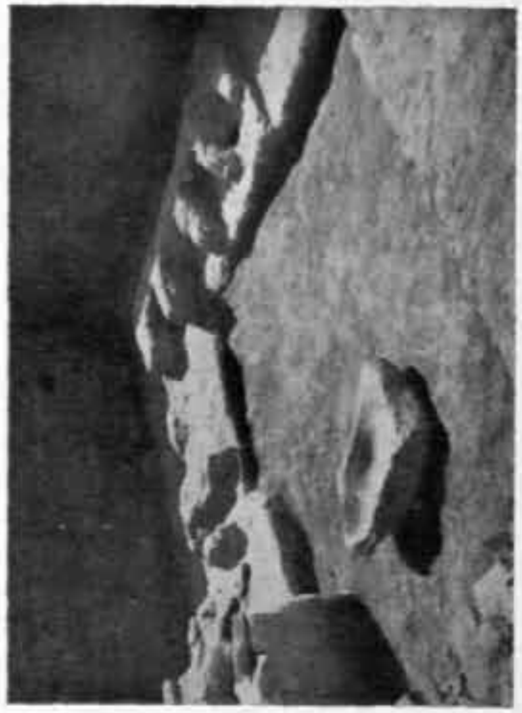
Kalibangan : A, *terracotta human figurines* ; B, *terracotta bull* (*l.* 18 *cm.*). *See p.* 44



A



B



C

Ahar : A, *structures Phases I B and I C* ; B, *chevron-decorated hearth, Phase I C* ; C, *five-armed hearth and a quern.* *See pp.* 48-50



A



B

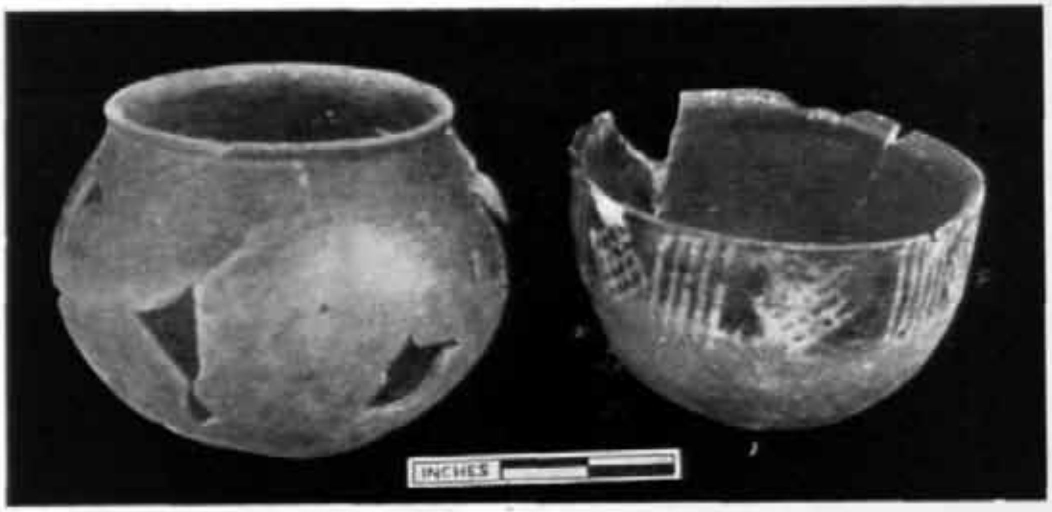


C



D

Ahar : A, *red-slipped pot with black patch, Phase I B* ; B *and* D, *grey jar with rusticated belly, Phase I B* ; C, *burnished grey narrow-necked pot, Phase I A*. *See p*. 48



A



B



C

Ahar : A, *white-painted black-and-red bowls, Phase I B* ; B, *black-and-red basin* (*dia.* 38 *cm.*), *Phase I A* ; C, 1, *chocolate-slipped chandelier, Phase I C* ; 2, *grey bowl-on-stand, Phase I B* ; 3, *black-and-red dish-on-stand, Phase I C*. *See pp.* 47 *and* 48



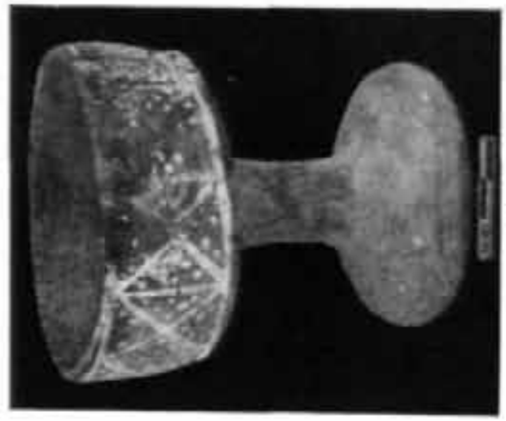
A



B



C

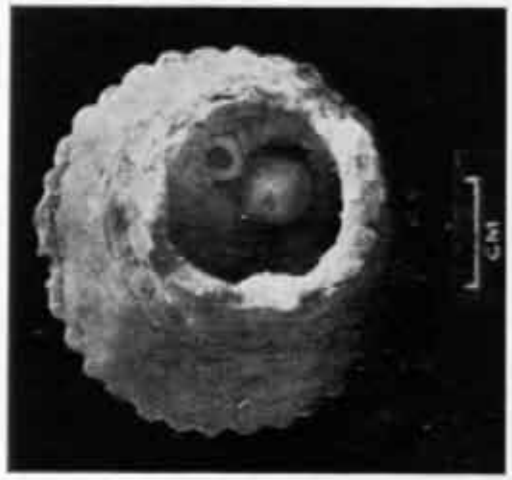


D

Ahar : A, *and* B, *chandelier, Phase I A;* C, *basin with short channel-spout, Phase I C;* D, *white-painted dish-on-stand, Phase I B.* *See p.* 48



B



D

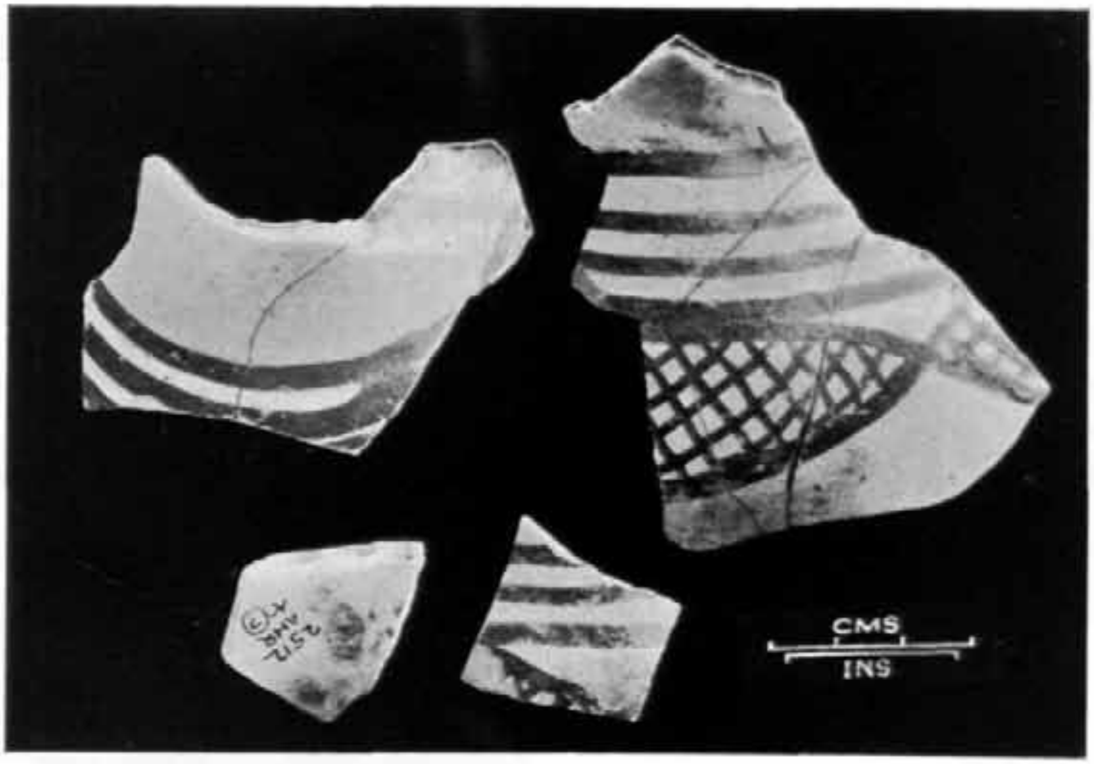


A

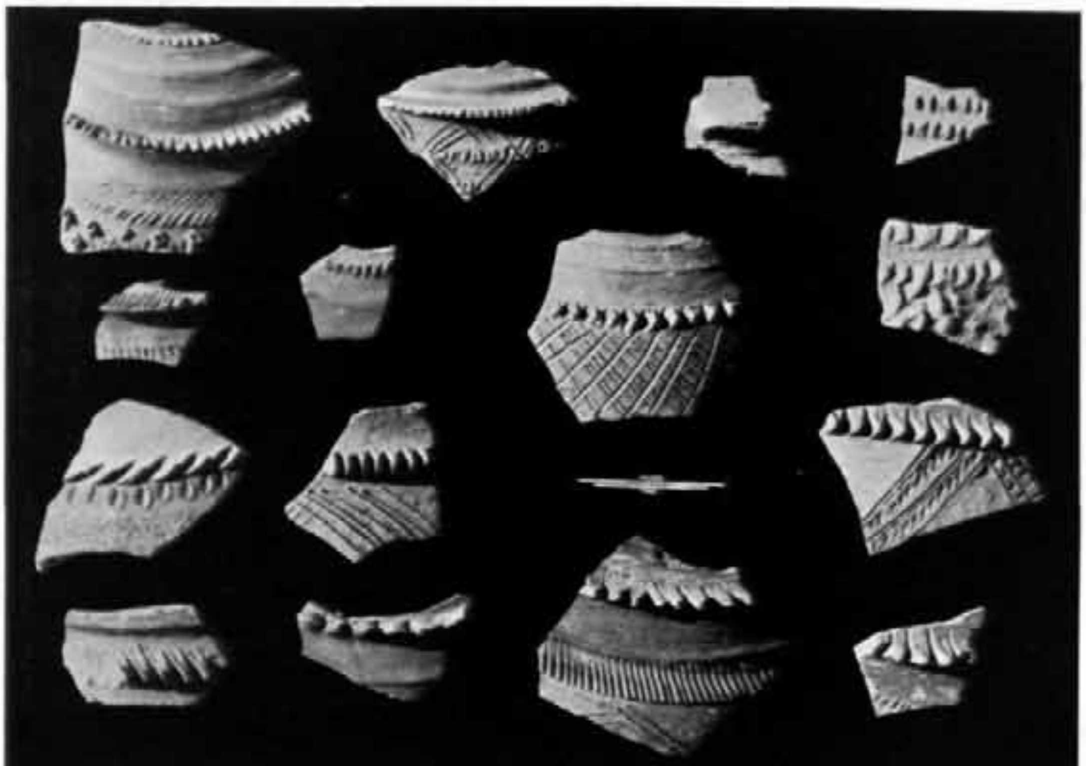


C

Ahar : A-C, *decorated sherds, Phases I B and I C :* D, *tiny pots with beads, Phase I B. See pp.* 46, 48 *and* 50

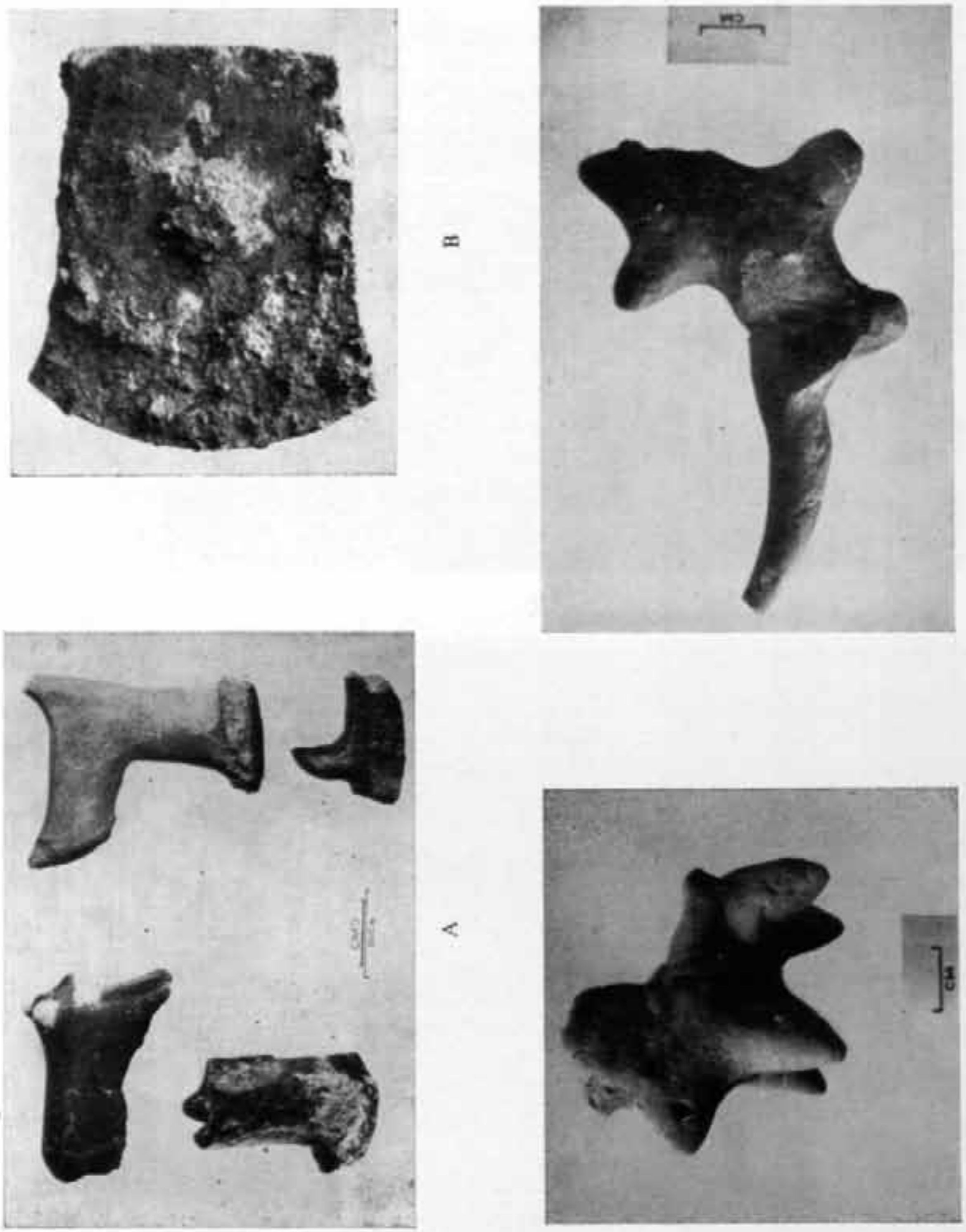


A



B

Ahar : A, *black-painted cream-slipped ware, Phase IA* ; B, *decorated sherds.* *See pp.* 47 *and* 48



Ahar : A, *animal-headed pottery-handles* ; B, *copper celt* (*l.* 12·8 *cm.*), *Phase I B* ; C *and* D, *terracotta animal-figurines.* *See pp.* 48 *and* 50

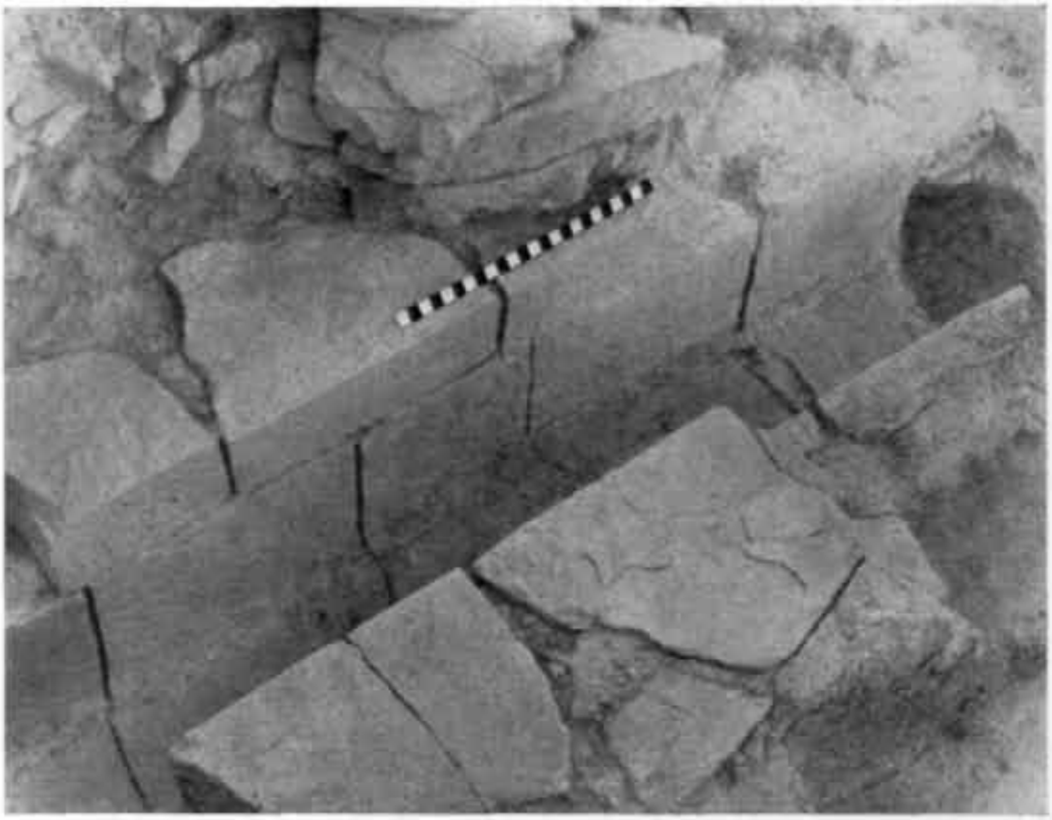


A



B

Kausambi : A, *stone wall of Phases I and II* ; B, *tower on the Yamuna.* *See p.* 51



A



B

Kausambi : A, *flush-pointed stone drain ;* B, *brick-and-stone structure.* *See p.* 51



A



B

Kausambi : A, *walls with lime-plaster* ; B, *four-centred pointed arch. See pp.* 51 *and* 52

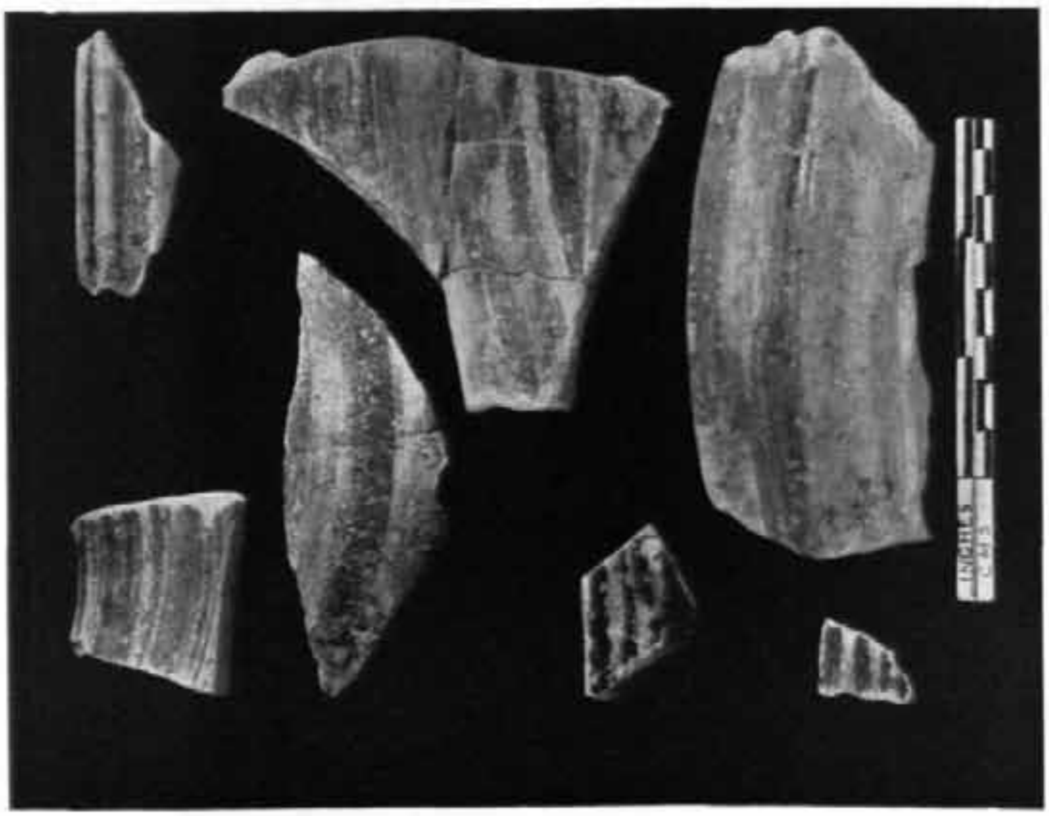


A

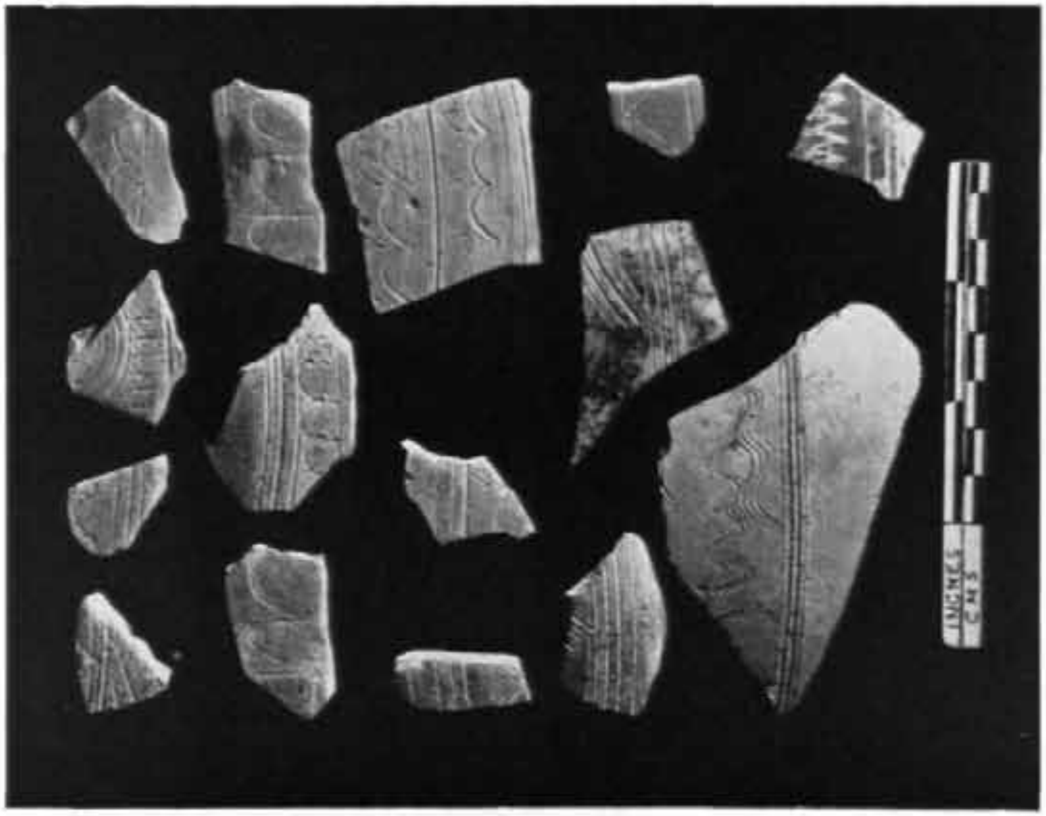


B

Kausambi : A, *passages into galleries* ; B, *arched entrances from western gallery*. *See pp*. 51 *and* 52



A



B

Kausambi : painted and incised pottery, Period I. See p. 51



A



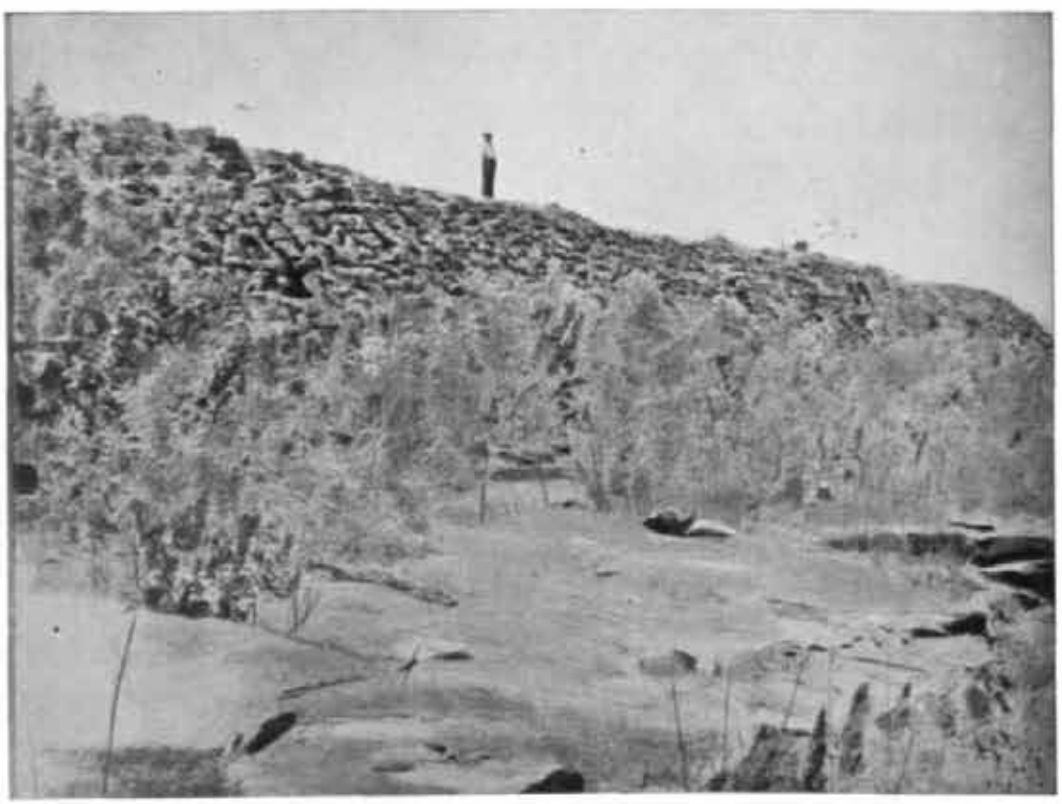
B

Chandraprabha valley : megaliths. See p. 53

A



B



Magan-Diwana : stone fortress. *See p.* 53

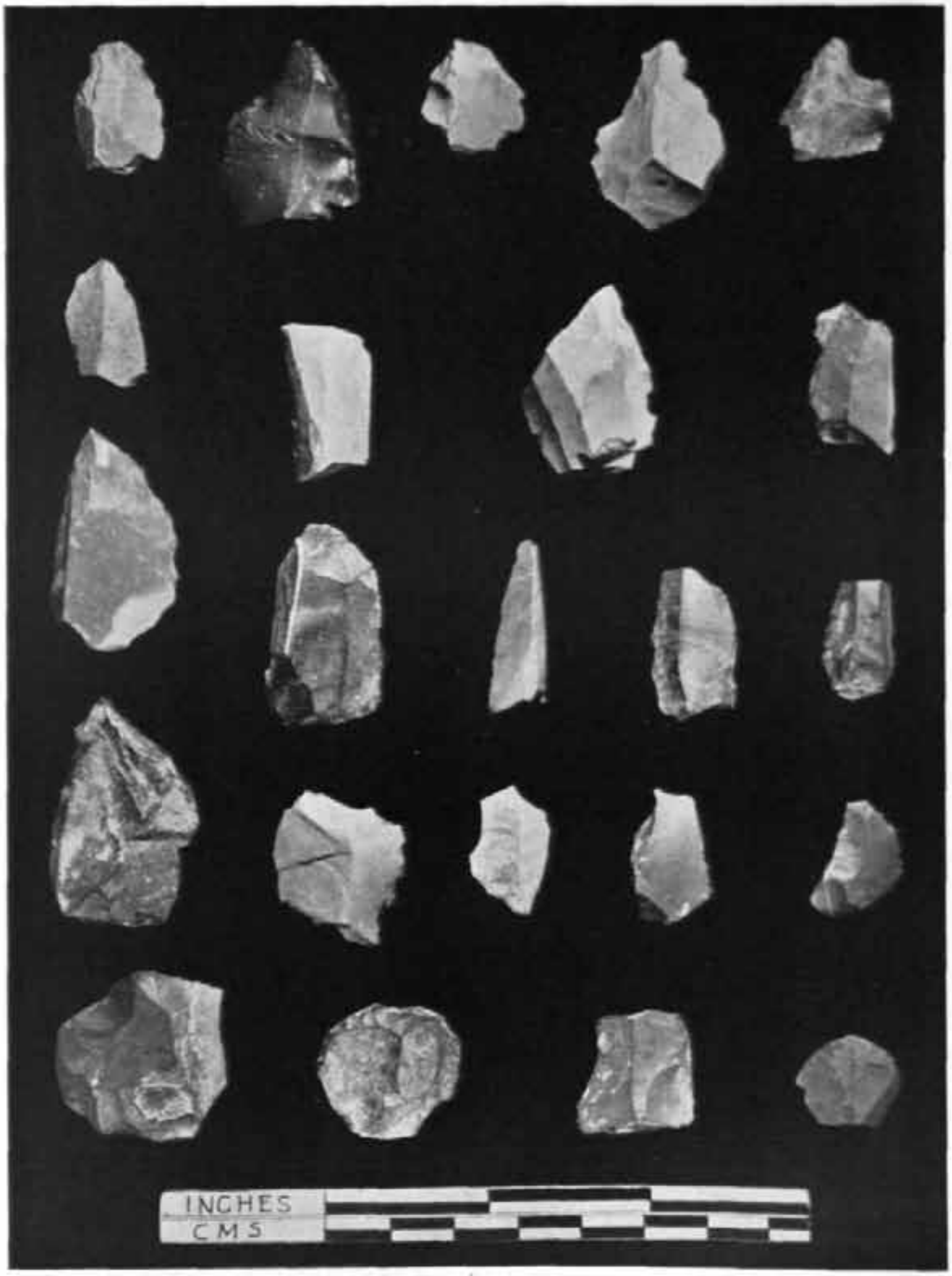


A

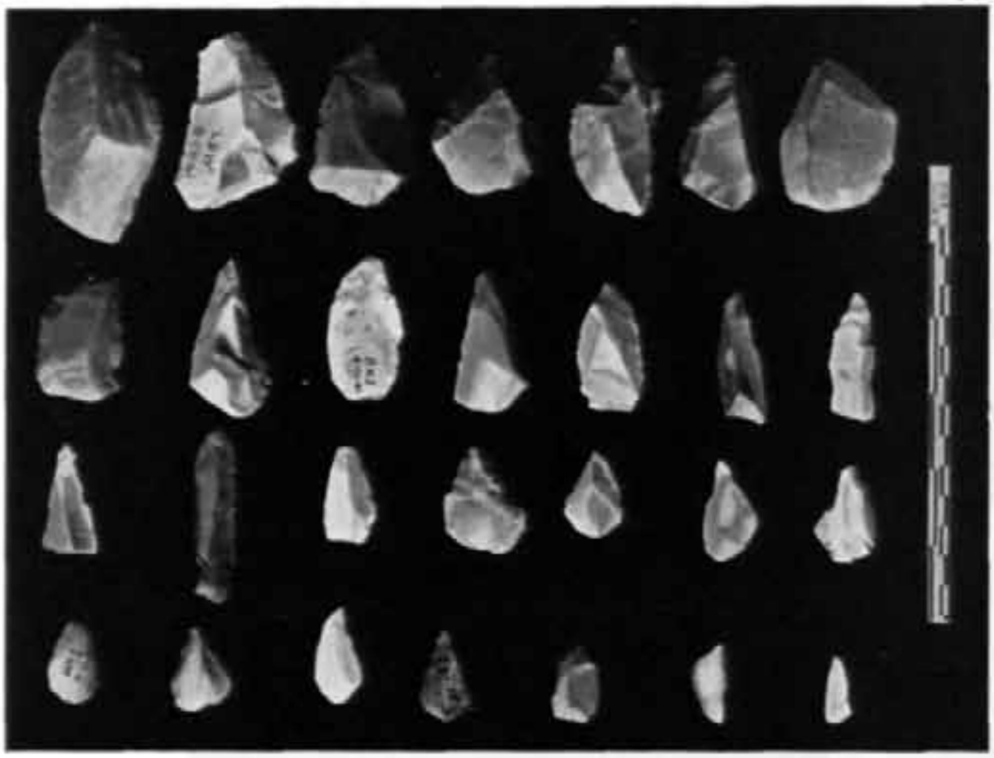


B

Raja-Baba-ka-Pahar ; A, *flank-wall leading to hill-top* ; B, *gateway of fortress.* *See p.* 53



Raja-Baba-ka-Pahar : microliths. *See p.* 53



A



B

Banda District : Middle and Late Stone Age tools. *See p.* 54



A



B

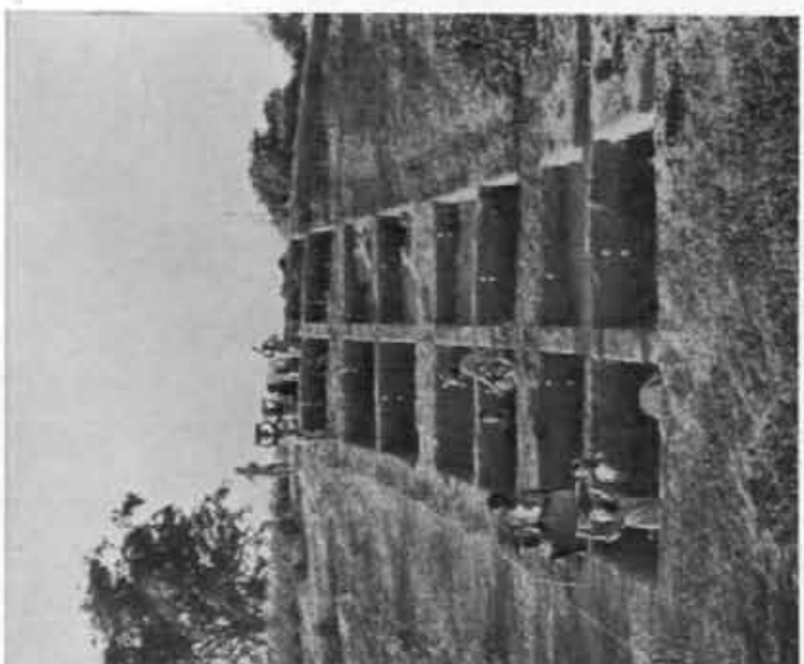


C

A, *Banke-Siddha : flint handaxe ;* B, *Lodhwara hill : polished stone axe :* C, *Badausa : hammer-stones.*
See pp. 54 *and* 56

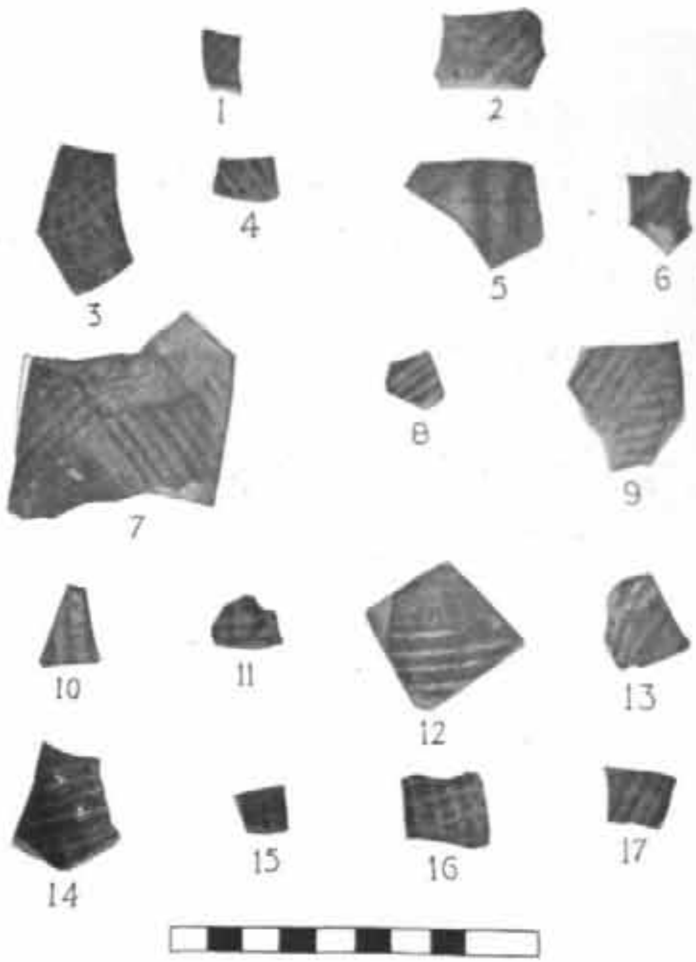


B



A

Sohagaura: A, *general view of trenches*; B, *ring-wells*. *See p.* 56



A

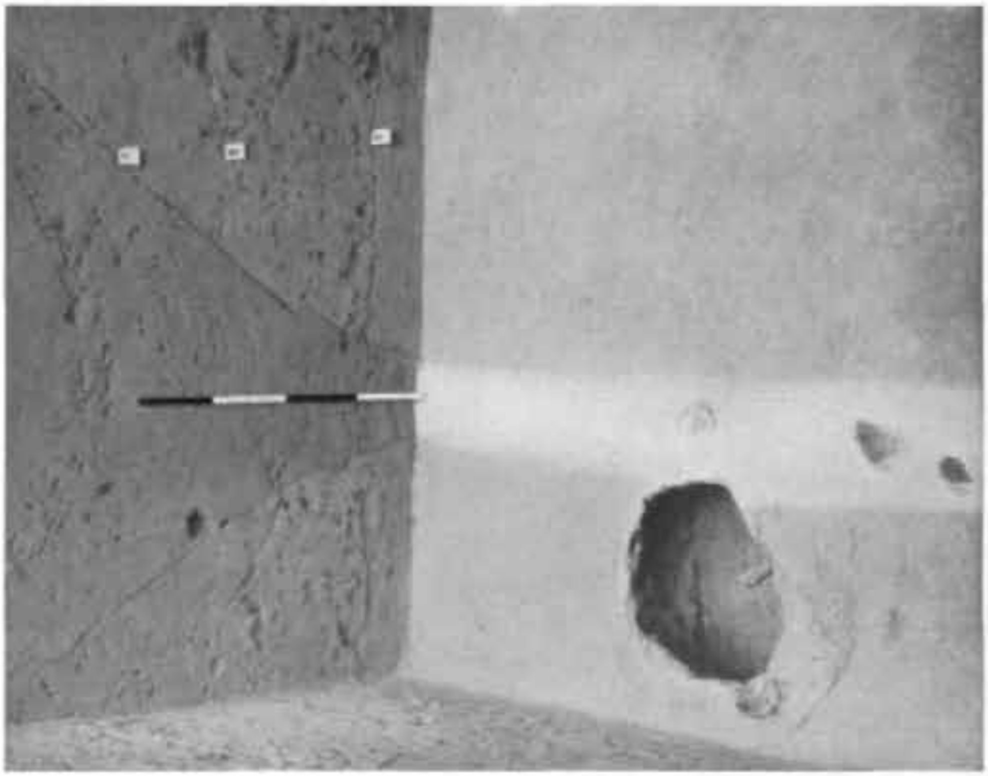


B

Sohagaura : A, painted sherds, Period I ; B, pottery, Period II. *See p. 56*



A



B

Rajghat : A, *ring-wells, Period I B;* B, *foot-prints over silted drain, Period I C.* *See p. 58*



A



B

Rajghat : A, *structures of Periods III and IV:* B, *kitchen with oven and storage-pots, Period IV.*
See pp. 58 *and* 59



A



B

Rajghat : A, *bone points and arrow-heads, Period II;* B, *seals and sealings, Periods III and IV.* *See p.* 58

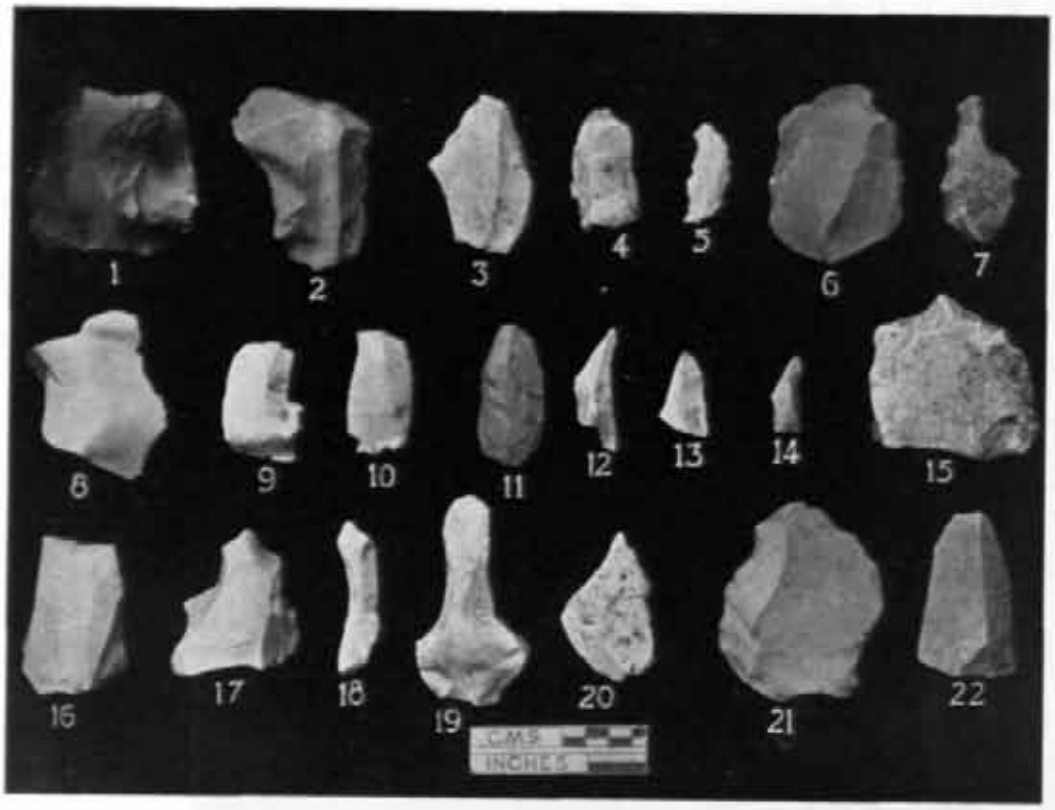


A

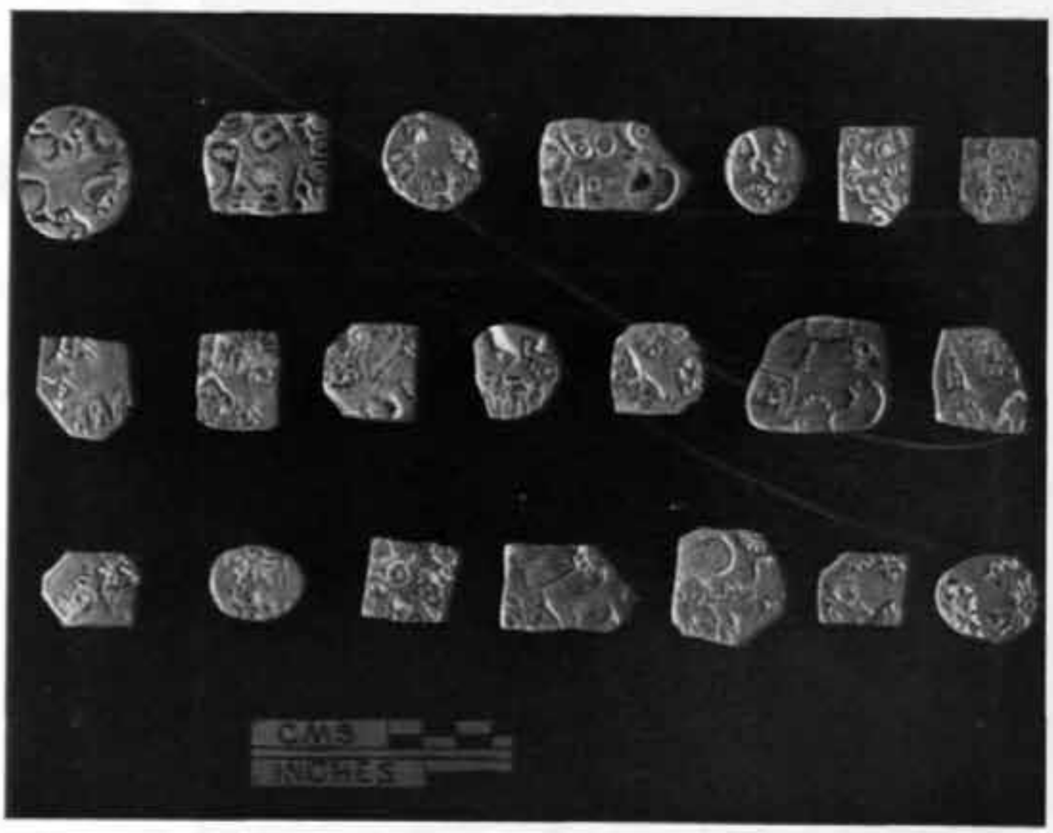


B

Rajghat : terracotta human and animal figurines. *See p.* 58



A



B

A, *Baghmuri, Nalhati, etc.: microliths;* B, *Tilora: punch-marked coins.* *See p. 59*



C



B



A

A, *Bangarh : terracotta mother-goddess* (*ht.* 1·5 *cm.*); B, *Chandraketugarh : terracotta toy-cart* (*ht.* 17 cm.); *West Dinajpur : Vishnu in miniature temple* (*ht.* 33 *cm.*). *See p.* 62

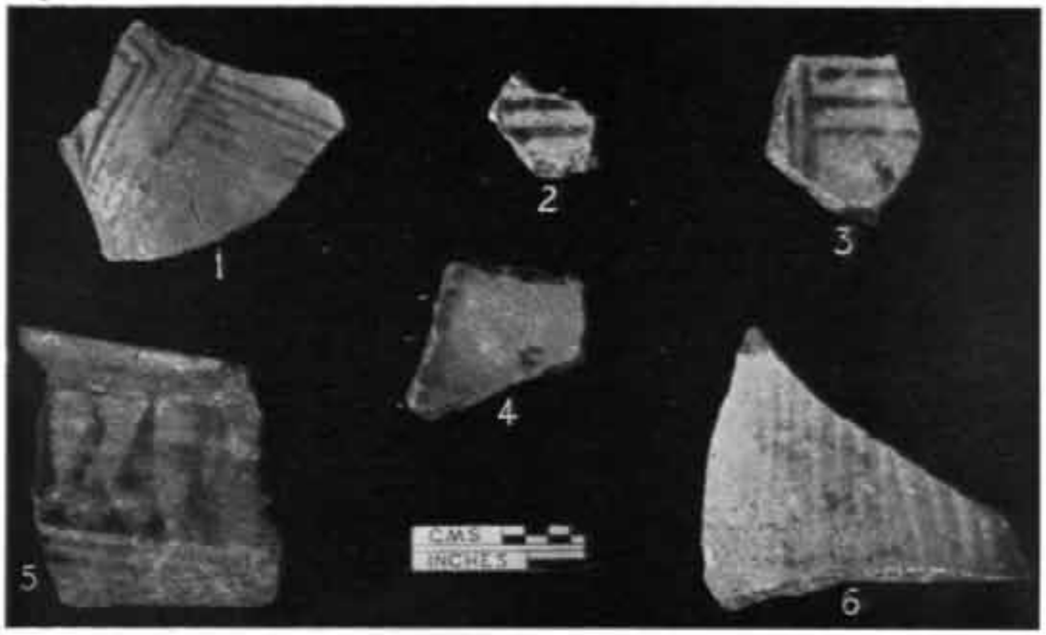


A



B

Pandu : A, lime-plastered floor, Period II; B, circular oven, Period III. *See p.* 61



A



B

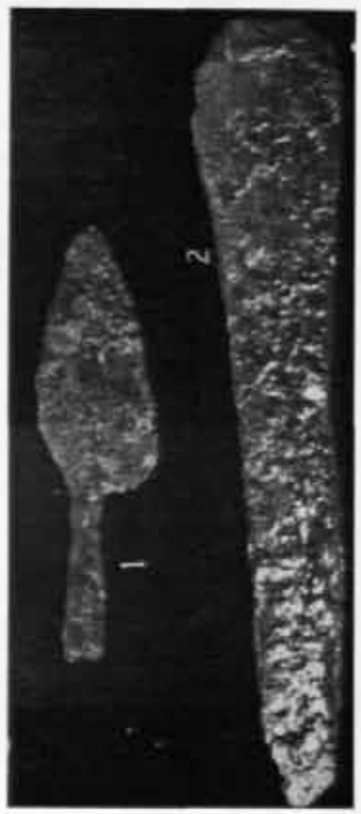
Pandu : pottery, Periods III and IV. *See p.* 61



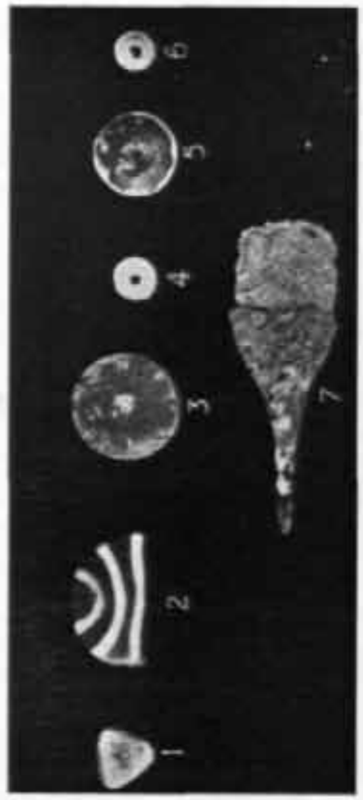
A



B

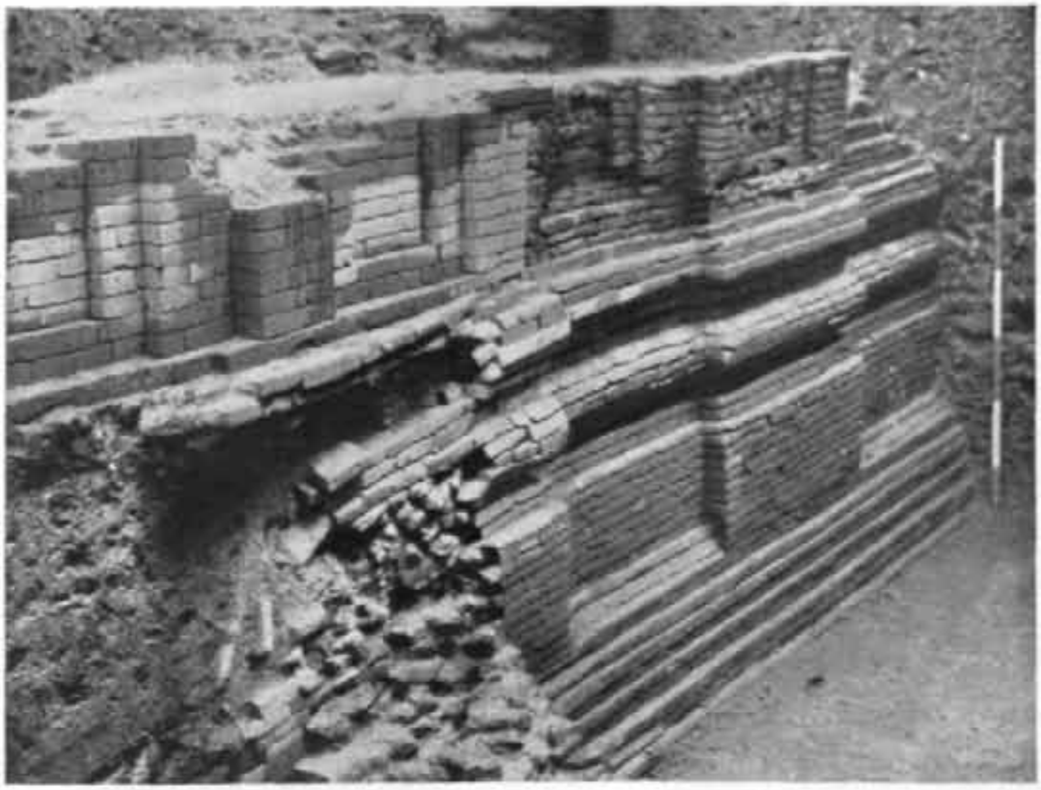


C



D

Pandu : A, *black-and-red ware sherd of channel-spouted bowl, Period V;* B, *incised design on black burnished ware, Period IV;* C, *iron arrow-head and celt, Periods IV and III;* D, *beads and copper chisel.* *See pp.* 61 *and* 62



A



B

Chandraketugarh : A, *brick structure with mouldings and offsets, Period VII;* B, *pit inside brick-temple, Period VIII. See p.* 63







A B C

A *and* B, *Chandraketugarh : terracotta human figurine;* C, *Hadipur : terracotta Lakshmi.* *See pp.* 62 *and* 63


A


B

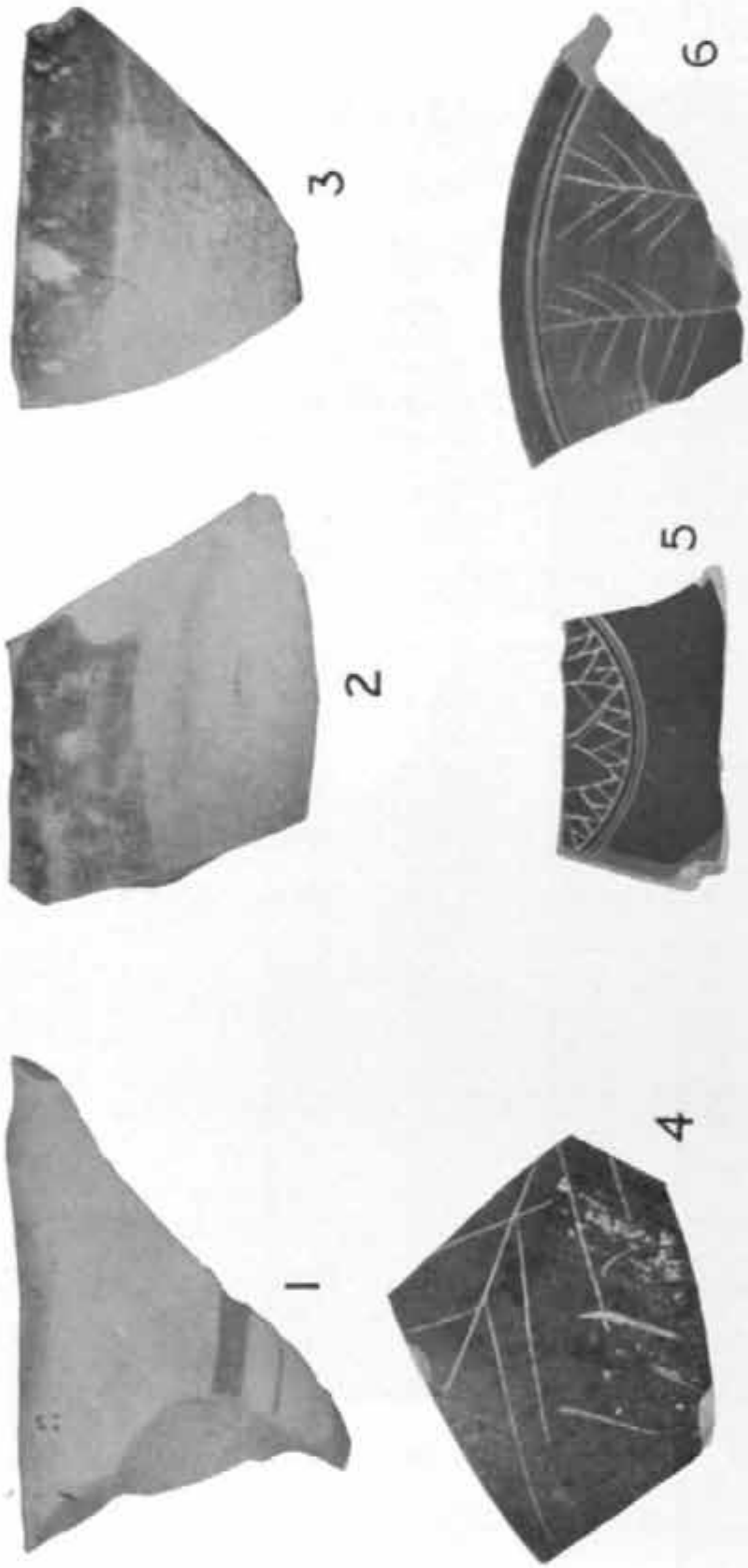

C


D


E


F

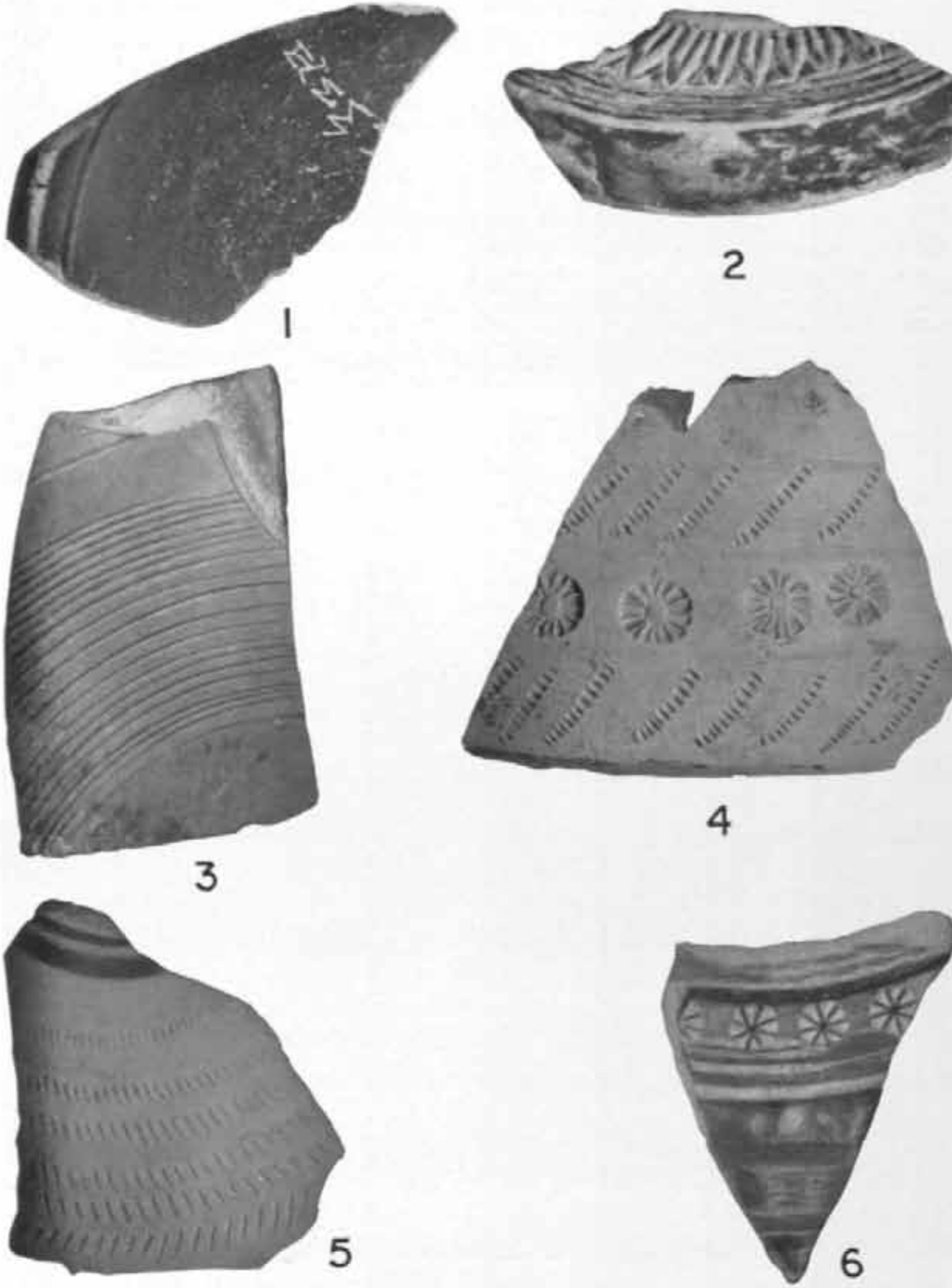
Chandraketugarh : A-E, *terracotta human and animal figurines;* F, *bronze Parvatī.* *See pp.* 62 *and* 63



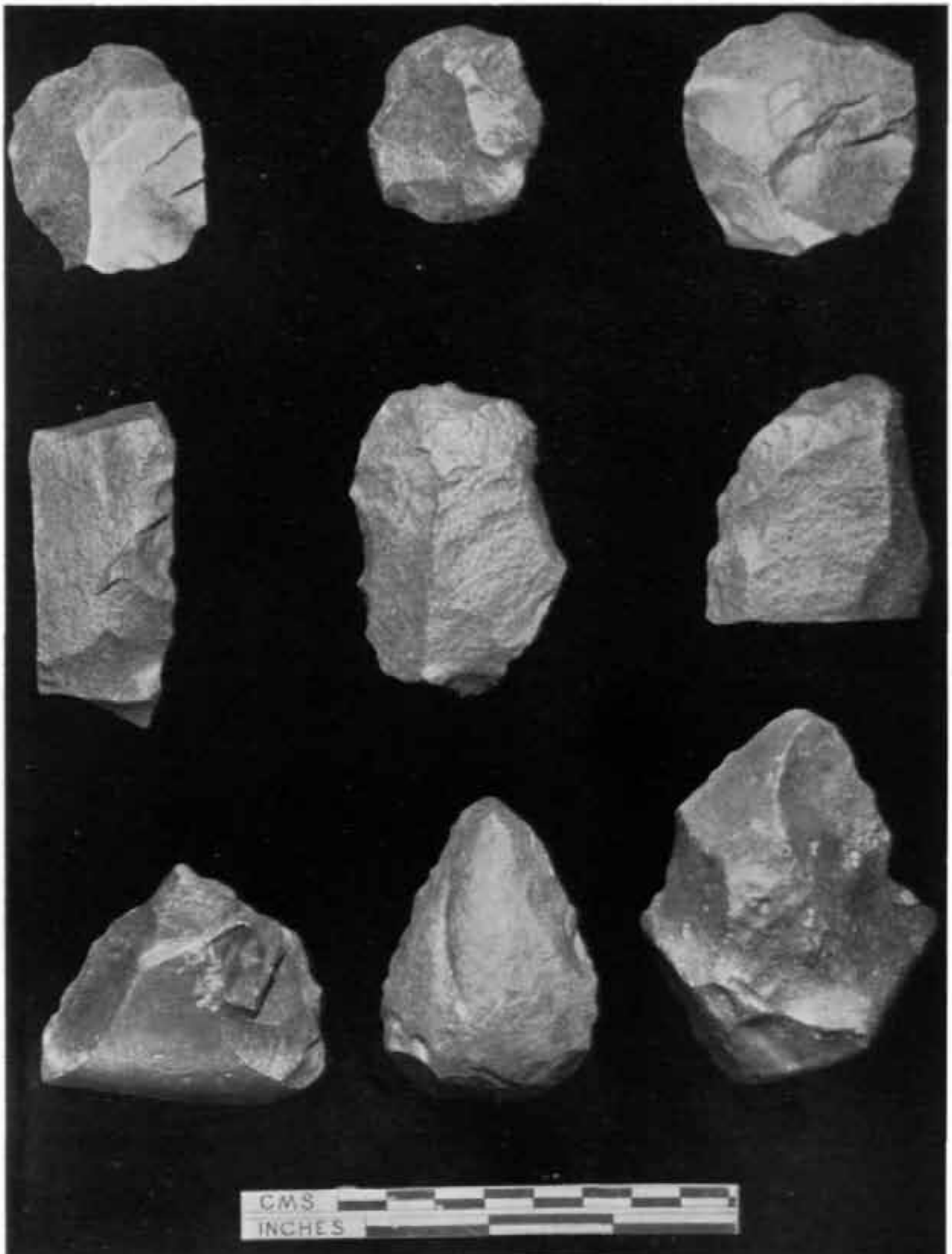
Chandraketugarh : 1-3, *painted grey ware*; 4-6, *pottery with graffiti.* *See p.* 62



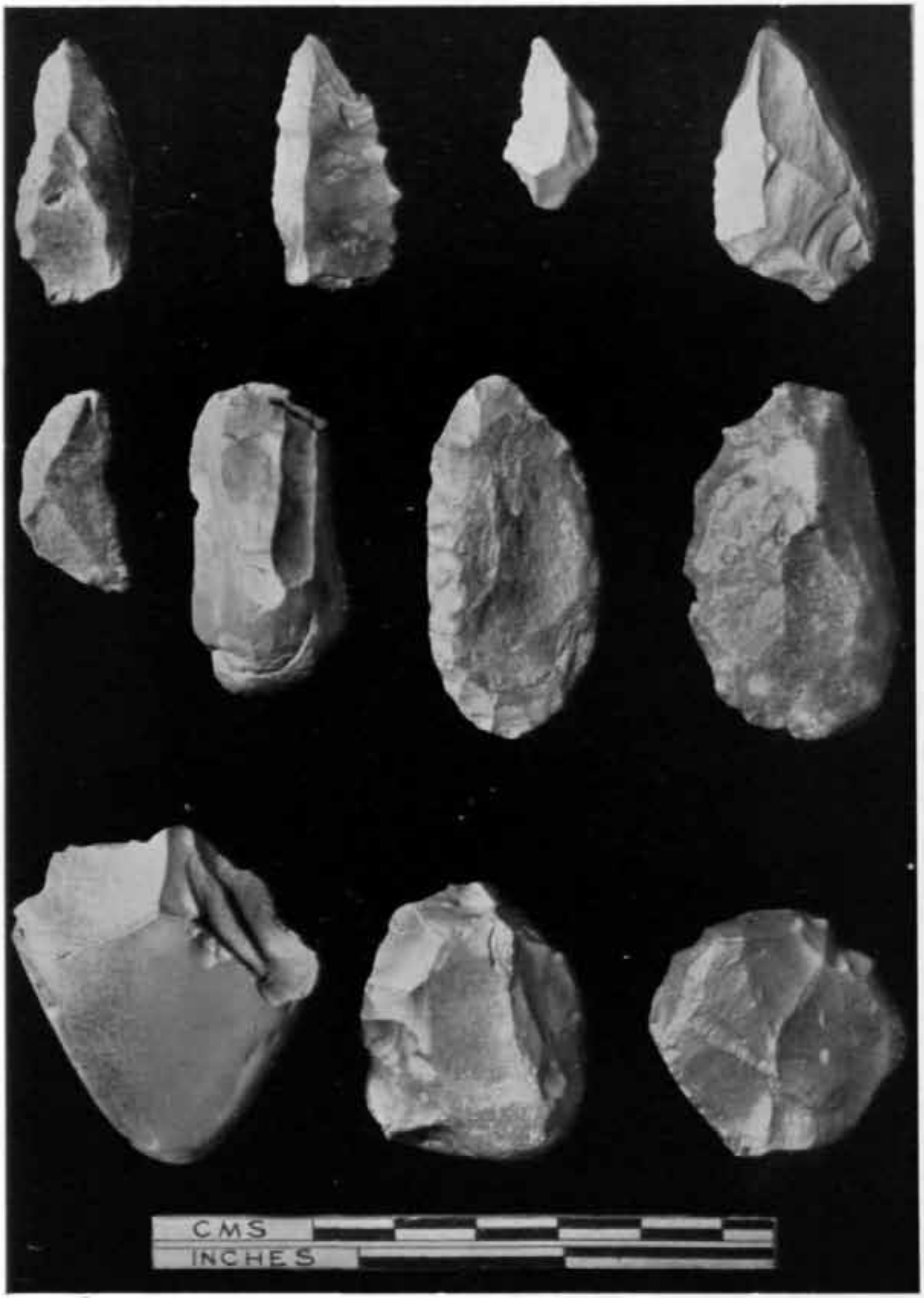
Chandraketugarh : painted pottery. *See p.* 63



Chandraketugarh: pottery. *See p.* 63



Nile terraces near Afyeh (Egypt) : tools of Middle Stone Age. *See p. 66*



Lower Nile terraces near Afyeh (Egypt) : tools of Late Stone Age. *See p.* 66

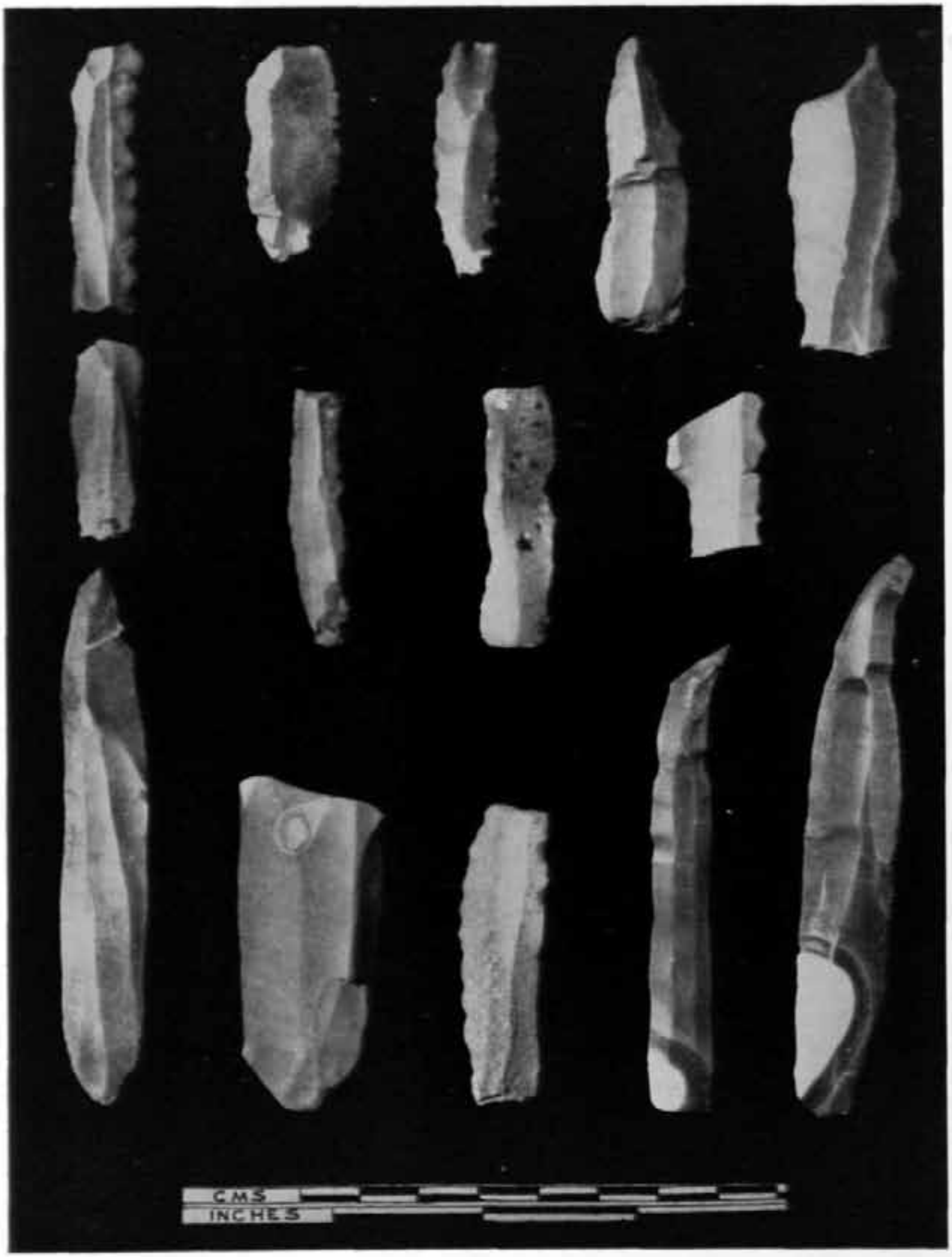


A

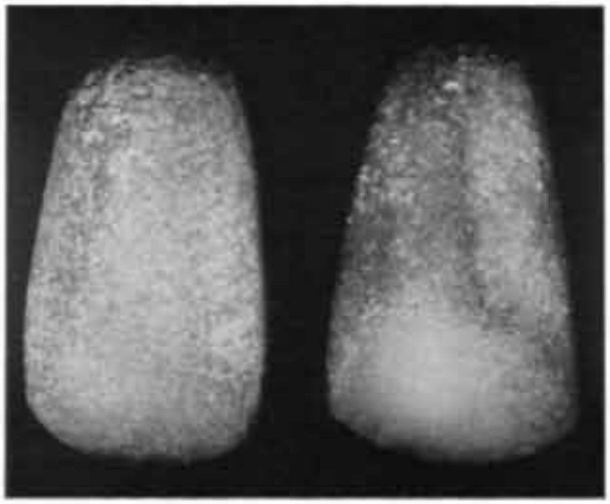


B

Afyeh (*Egypt*) : A, *rubble-stone houses, and* B, *door-sockets, on right, of a rubble-stone house, A-Group.*
See pp. 66 *and* 67



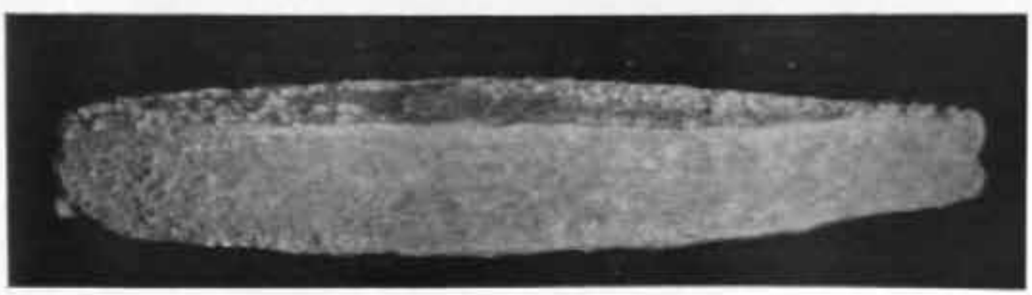
Afyeh (Egypt) : chert sickle-blades, borers, etc., A-Group. *See p.* 67



A



B

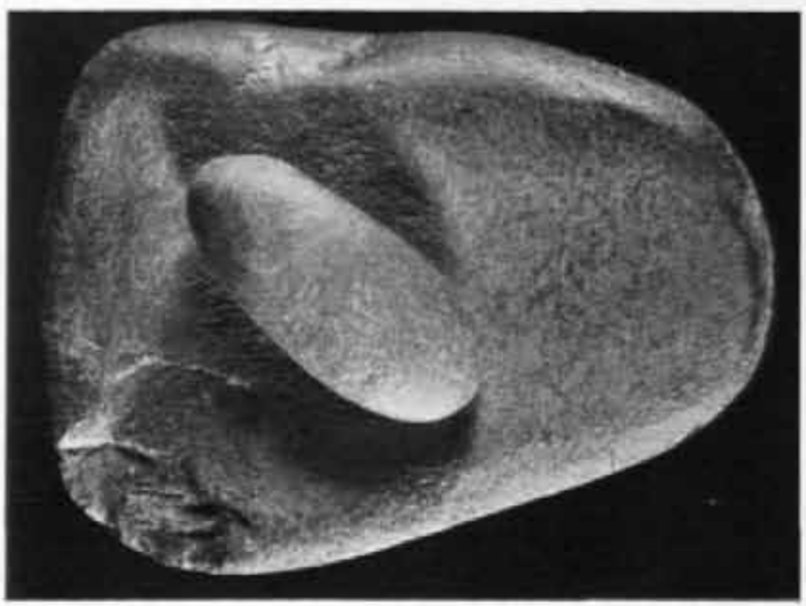


C

Afyeh (Egypt) : A, *polished stone axes,* (*l.*8 *cm.*) B, *bone tools* (*roughly* ½), *and* C, *copper chisel* (*l.* 12*cm.*), *A-Group.* *See p.* 67



A



B

Afyeh (*Egypt*) : A, *charred grains, and* B, *stone pallet and pebble* (*l.* 7·2 *cm.*), *A-Group.* *See p.* 67



A



B

Tumas (Egypt) : A, *Grave* 35, *with circular rubble-stone covering, C-Group, and* B, *its section.* *See p.* 69



A



B

Tumas (Egypt) : A, *Grave 35, crouched human skeleton on pit-floor,* *C-Group;* B, *Grave 117, human skeleton, partly plundered, on pit-floor. New Kingdom.* *See pp. 69 and 70*



A

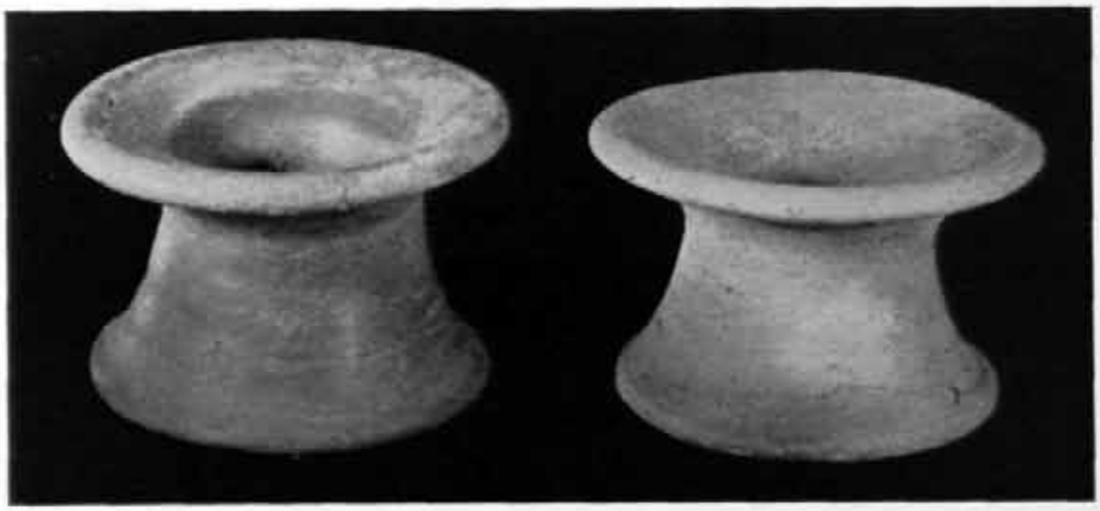


B

Tumas (*Egypt*) : A, *Grave* 13, *with capstone thrown up, and* B, *Grave* 14 *showing height of stone-circle, C-Group. See p.* 69



A



B

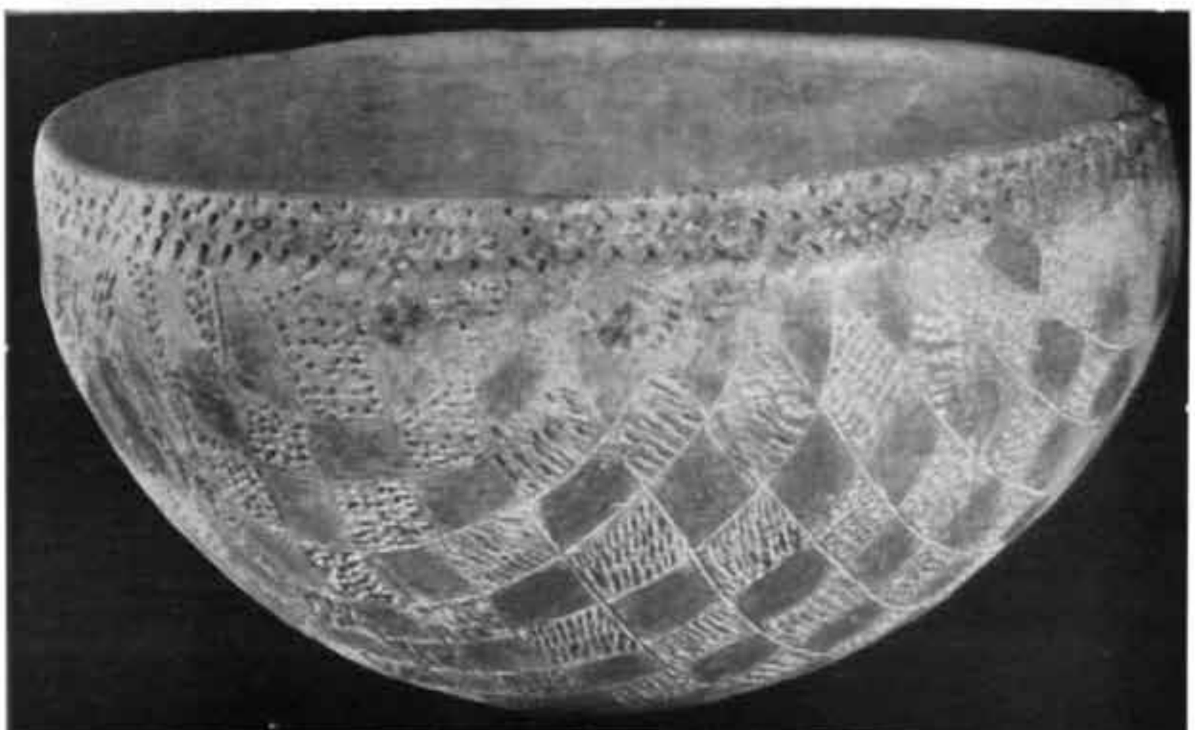


C

Tumas (*Egypt*) *:* A, *black-and-red ware bowls*, B, *red ware ring-stand, and* C, *black-and-red ware bowls with white-filled decorations, C-Group. See p.* 69

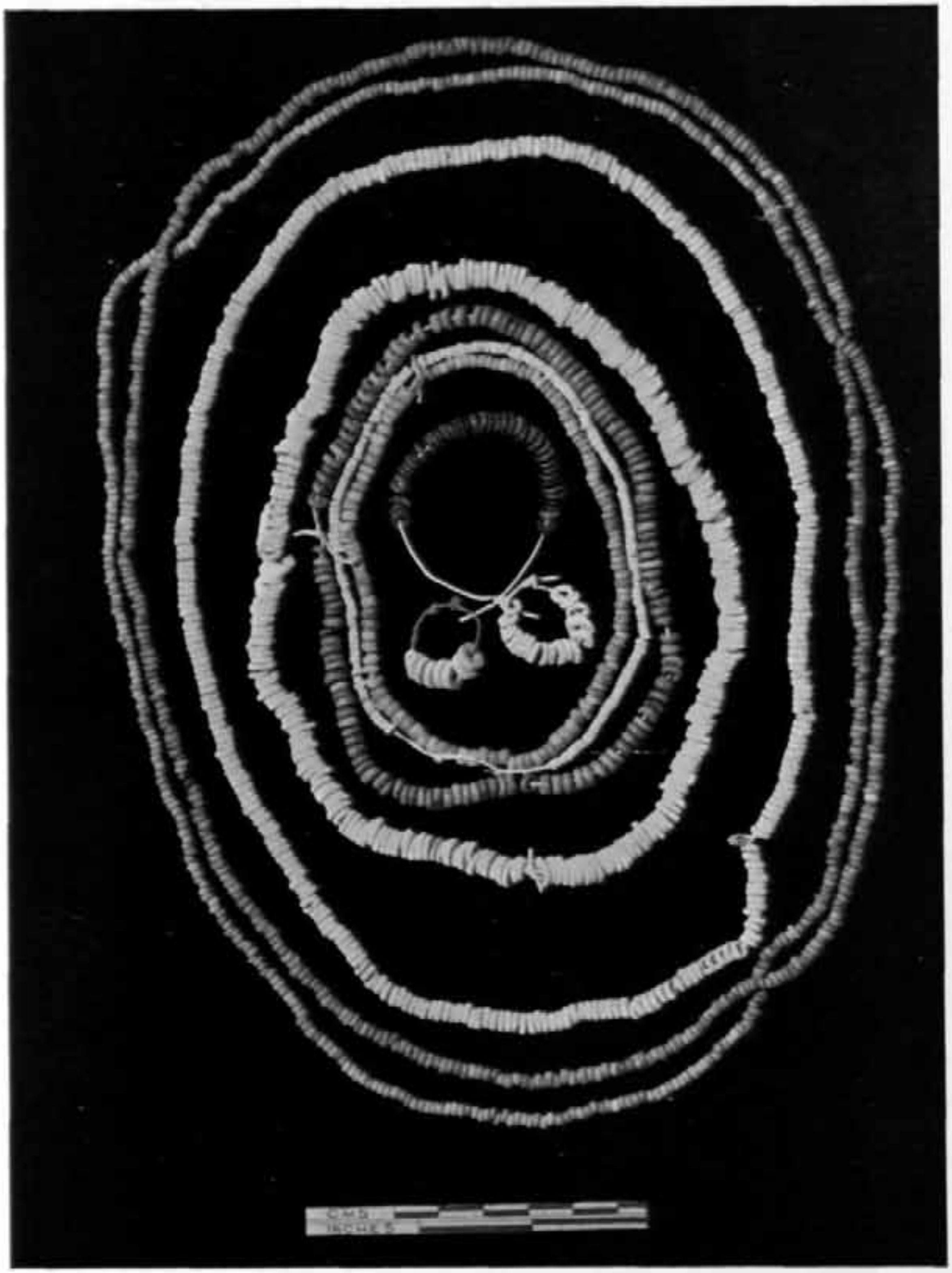


A



B

Tumas (Egypt): bowls of black-and-red ware with incised human figures and white-filled decorations. C-Group.
See p. 69



Tumas (*Egypt*) : *necklaces, etc.,* *C-Group.* *See p.* 69



A



B



C

A, *Tumas* (*Egypt*) *: seals, C-Group;* B, *Afyeh : grave-plunderer's cap;* C, *Tumas : plastic bead and cigarette left by grave-plunderers. See pp.* 69 *and* 70



B



A

Lumbini (Nepal): A, bronze images; B, stone sculpture. *See p. 71*



A



B

Kudan (Nepal) : A, *well with brick platform:* B, *Temple* 1. *See p.* 72

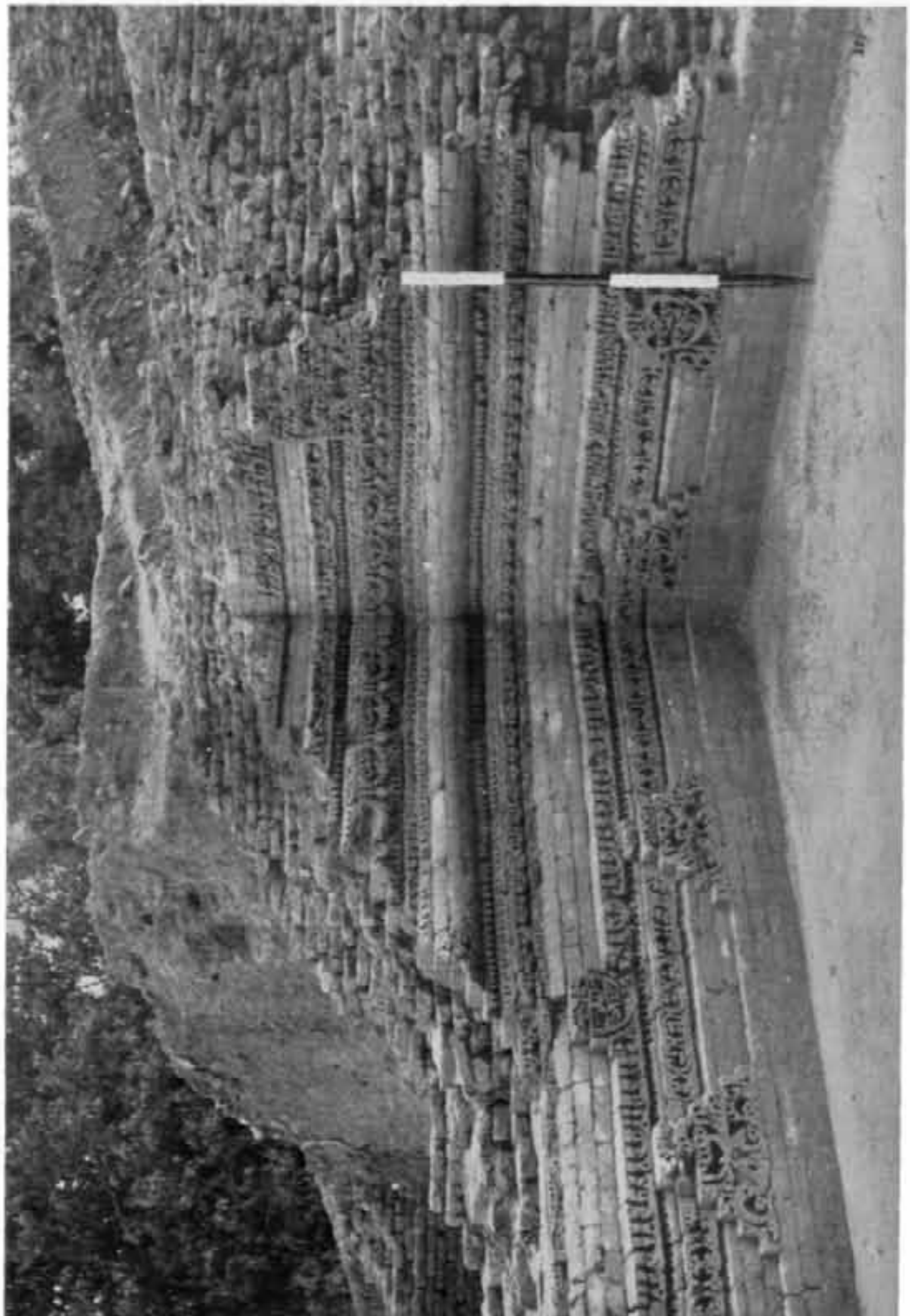


A



B

Kudan (Nepal): Temple 1, *details of plinth.* *See p.* 72



Kudan (Nepal) : Temple 1, plinth. *See p.* 72

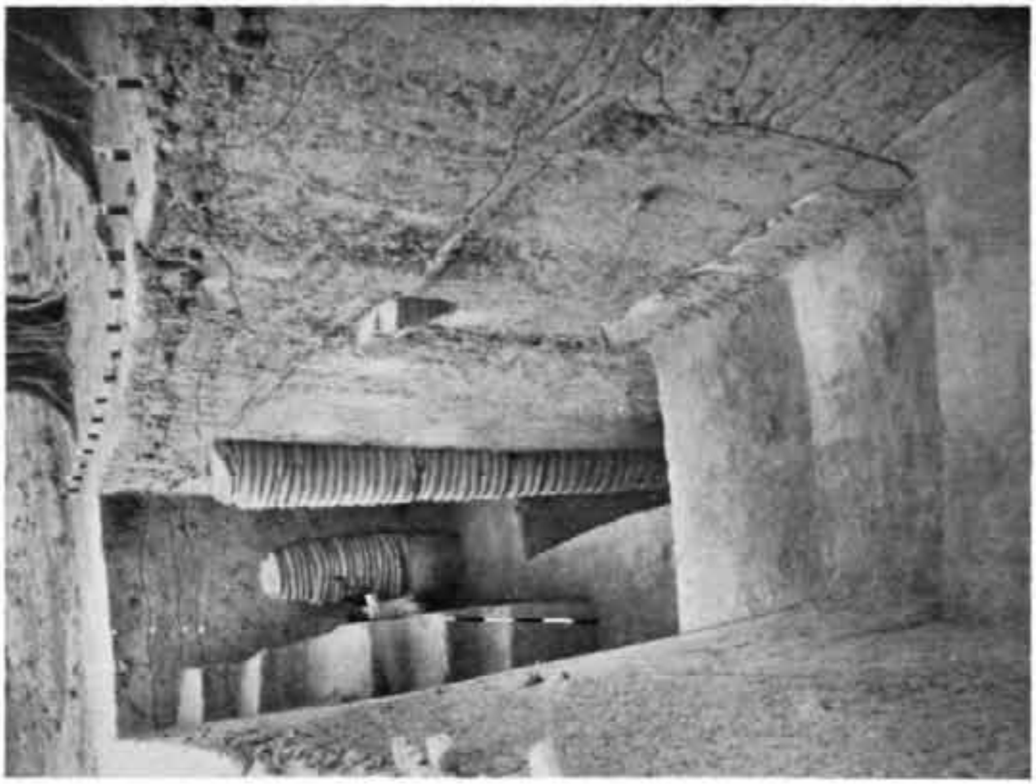


A



B

Kudan (Nepal) : A, *shrine*, *Temple* 1, *Phase II* ; B, *Temple* 2, *plinth*. *See p.* 73

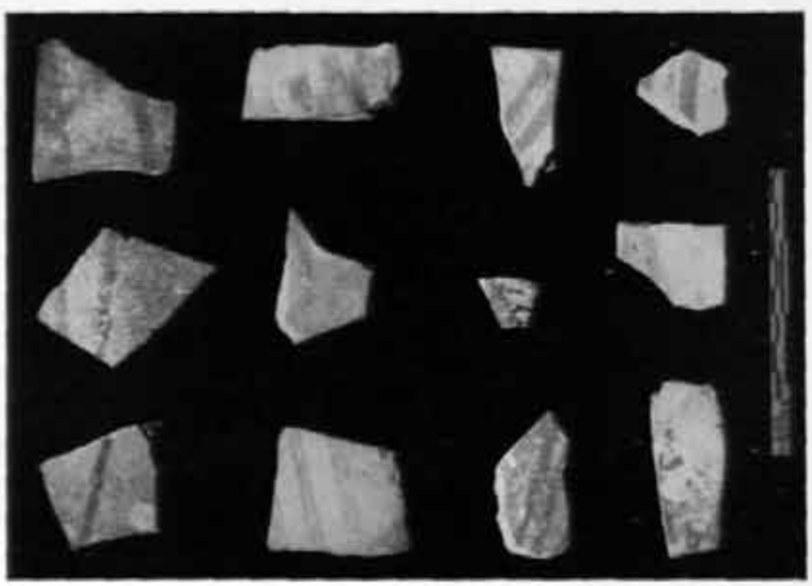


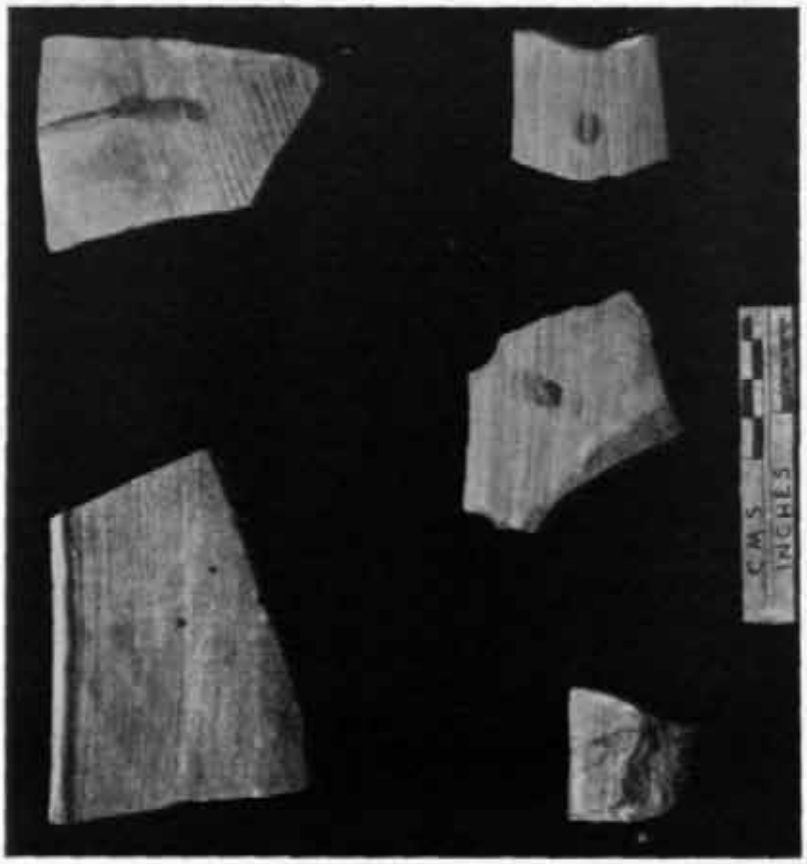
B



A

Tilaura-kot (Nepal) : A, *section of trench;* B, *ring-wells.* *See pp.* 73 *and* 74





A B

Tilaura-kot (Nepal): painted sherds in red and grey wares. *See p.* 74





A Tilaura-kot (Nepal): terracotta human figurines. See p. 74 B



A



B



C



D

Tilaura-kot (Nepal): terracotta human figurines. *See p.* 74



A



B

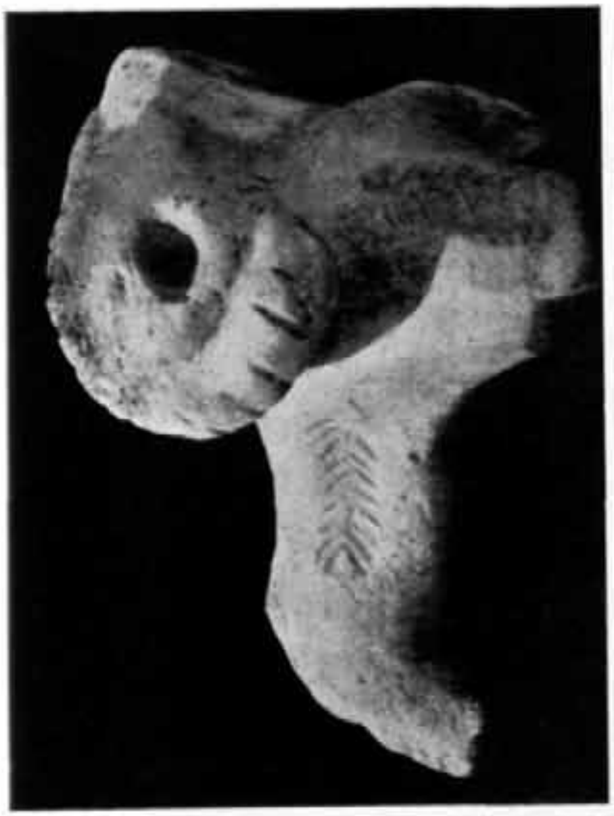


C



D

Tilaura-kot (*Nepal*) *:* A-C, *terracotta human figurines;* D, *red sandstone head.* *See p.* 74



B



E



A

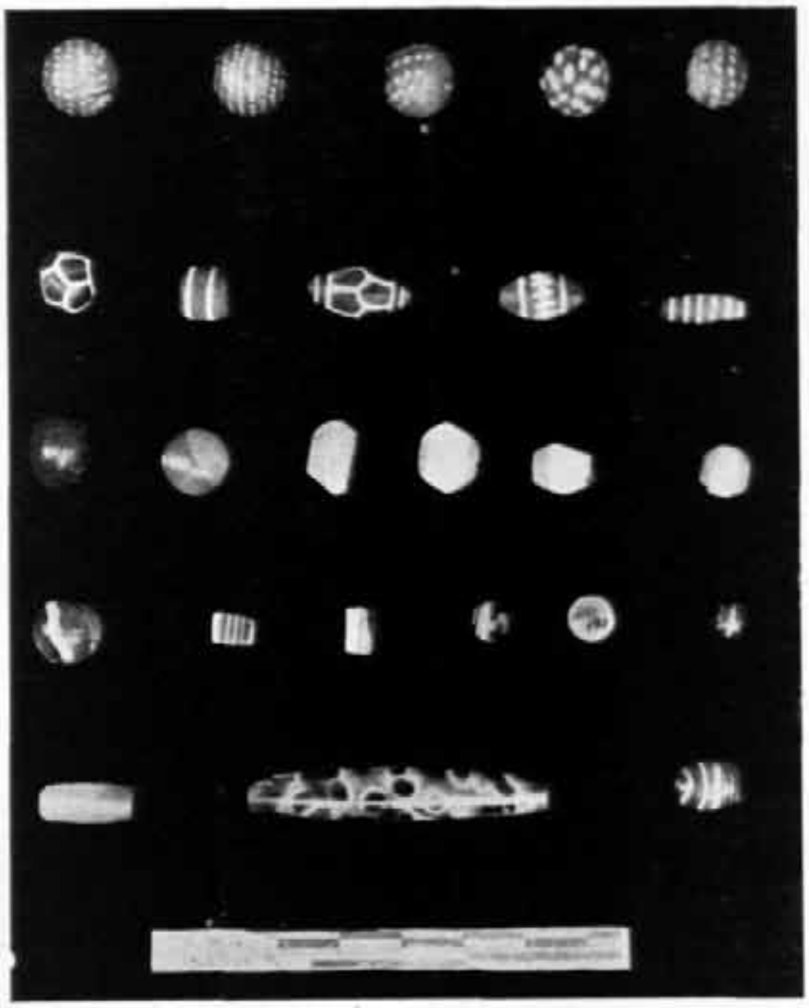


D



C

Tilaura-kot (*Nepal*): A-D, *terracotta animal figurines*; E, *toy-cart*. *See p.* 74

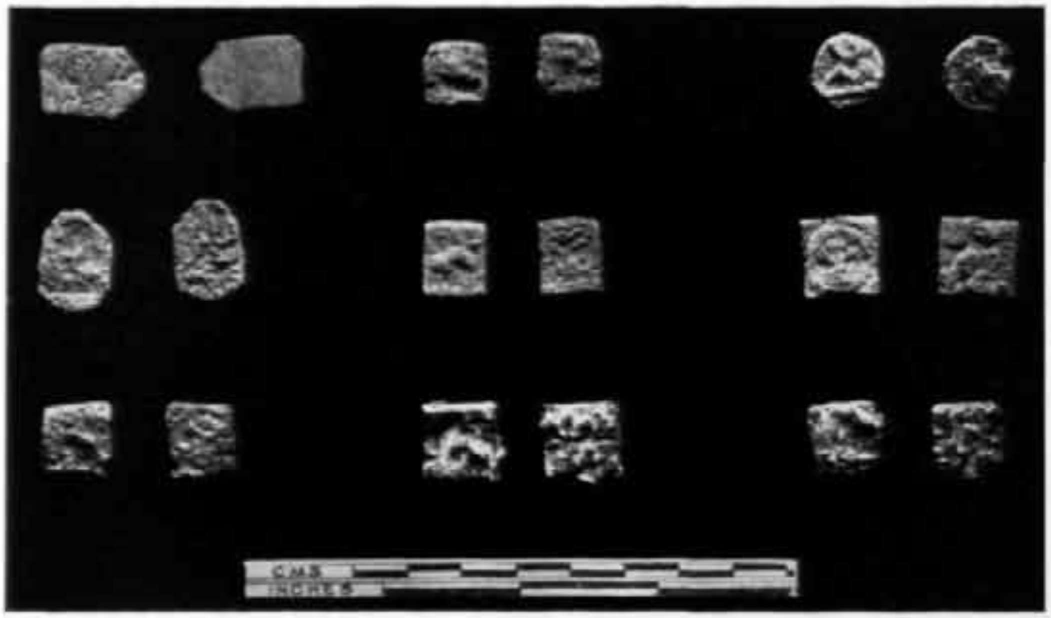


A

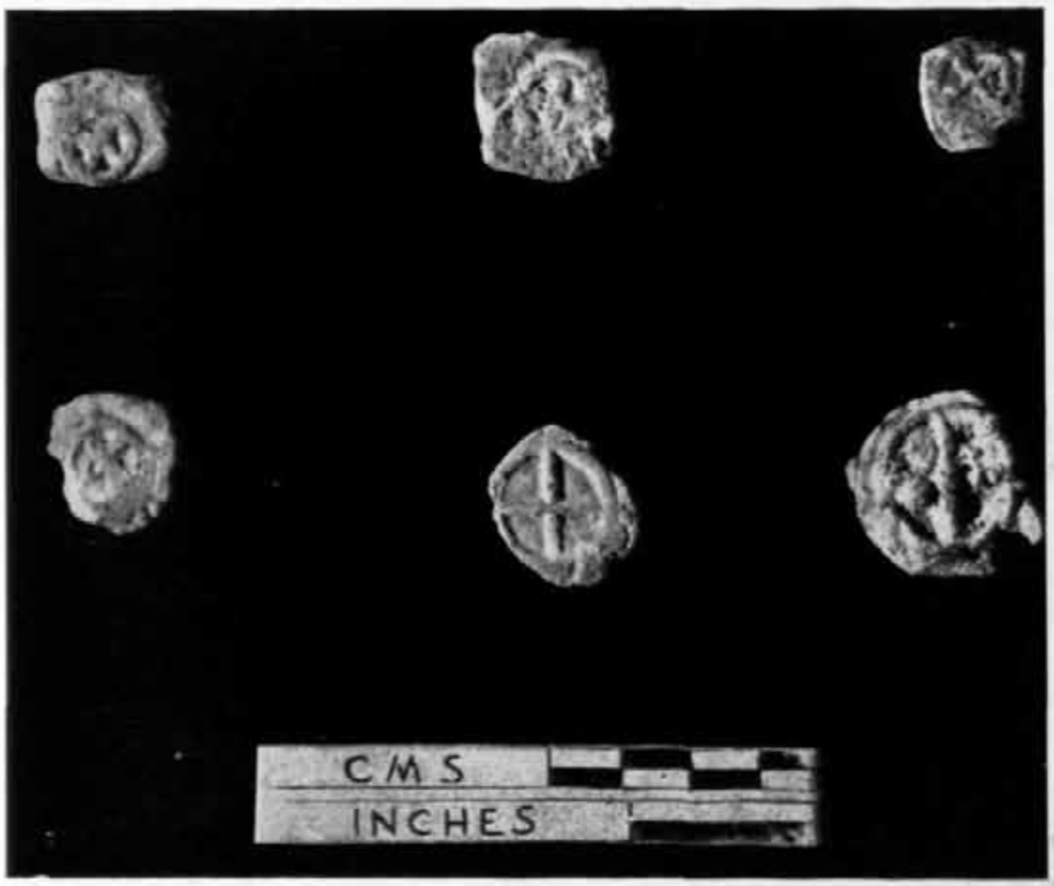


B

Tilaura-kot (Nepal): A, beads of etched carnelian and agate; B, pendants of ivory and semi-precious stones.
See p. 74



A



B

Tilaura-kot (*Nepal*) : A, *punch-marked and cast coins:* B, *copper coins.* *See p.* 74

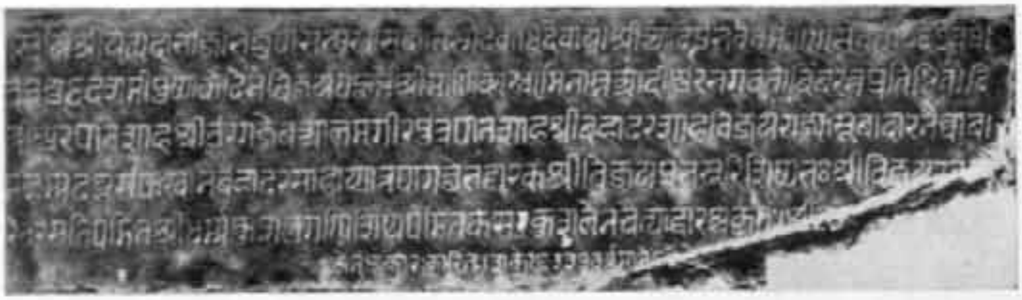


A



B

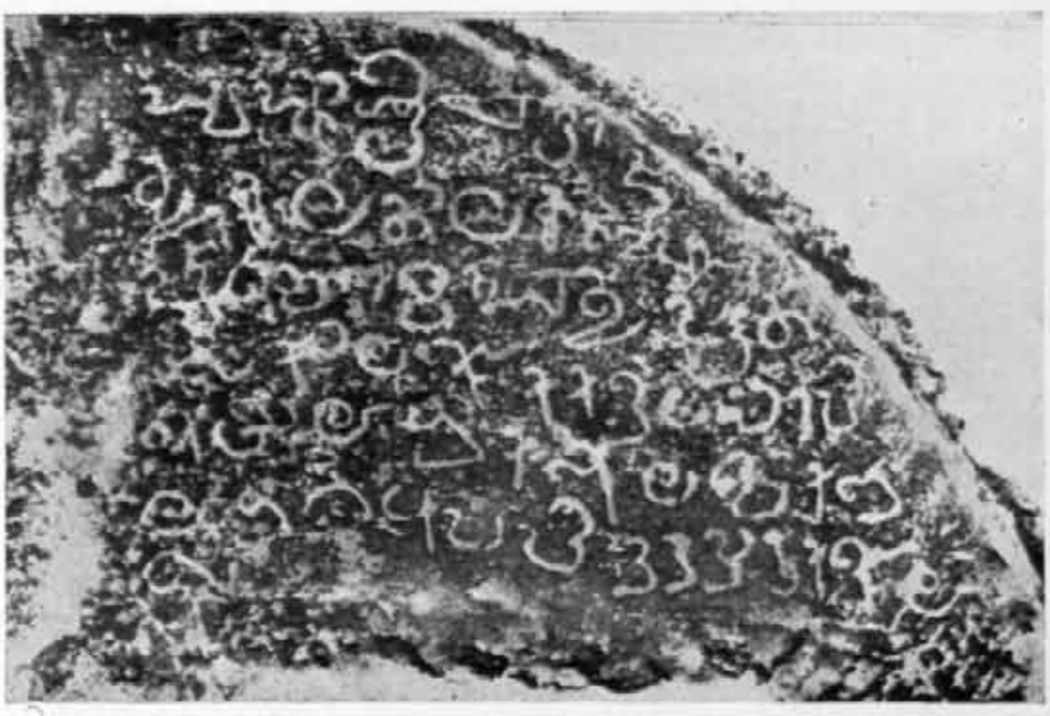
Katmandu (Nepal): A, *underlying gravel near Sitapakha*; B, *gravel-section of fine sand at the head of the Kwaja-Khola near Khowelang.* *See p.* 75



A



B

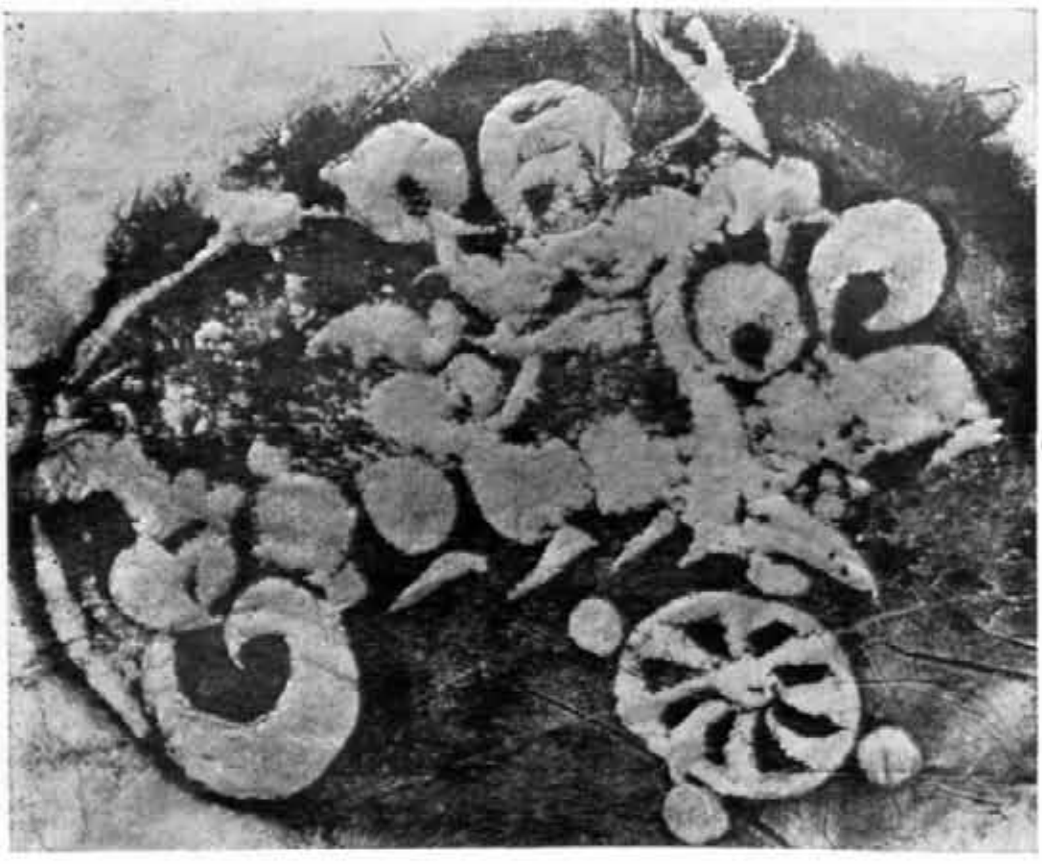


C

A, *Kolanupaka: Mughal inscription;* B, *Arachchalur : Tamil inscription in Brahmi;* C, *Ponnivadi : Vatteluttu Tamil inscription.* *See pp* 80-82



A



B

Akhnur : shell-inscriptions. *See p.* 81



Ahraura : inscription of Asoka. *See p. 86*



A



B

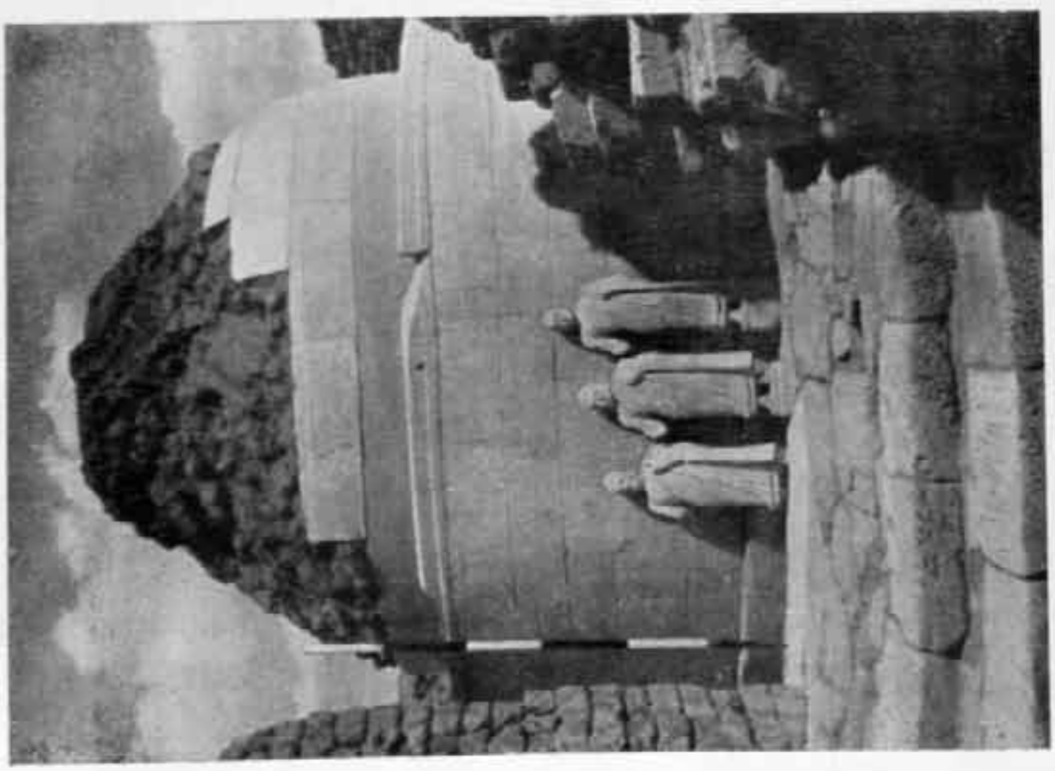


C



D

A. *Bhadreswar* : *epitaph of Abdullah;* B. *Burhanpur* : *inscription of Jahangir;* C. *Kot* : *inscription of Alau'd-Din Khalji;* D. *Chanderi* : *inscription of Hoshang Shah.* *See pp.* 87, 88 *and* 92



A



B

Guntupalli : three Buddha-figures standing against stupa. *See p. 97*



A



B

A, *Guntupalli : stone relic-casket enshrining bones;* B, *Delhi : ornamental porcelain dishes. See p.* 97



A



B



C

Delhi : A, *stone female figure;* B *and* C, *sculptured panel. See p.* 97



A



B

Delhi : sculptured panels. *See p.* 97

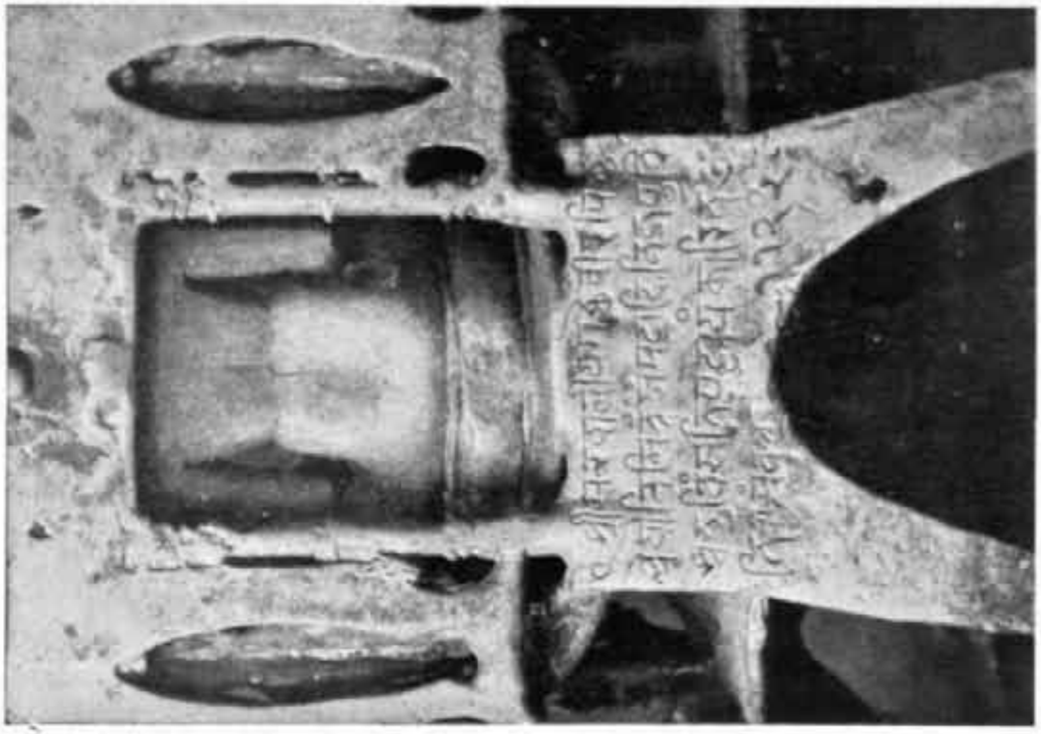


A

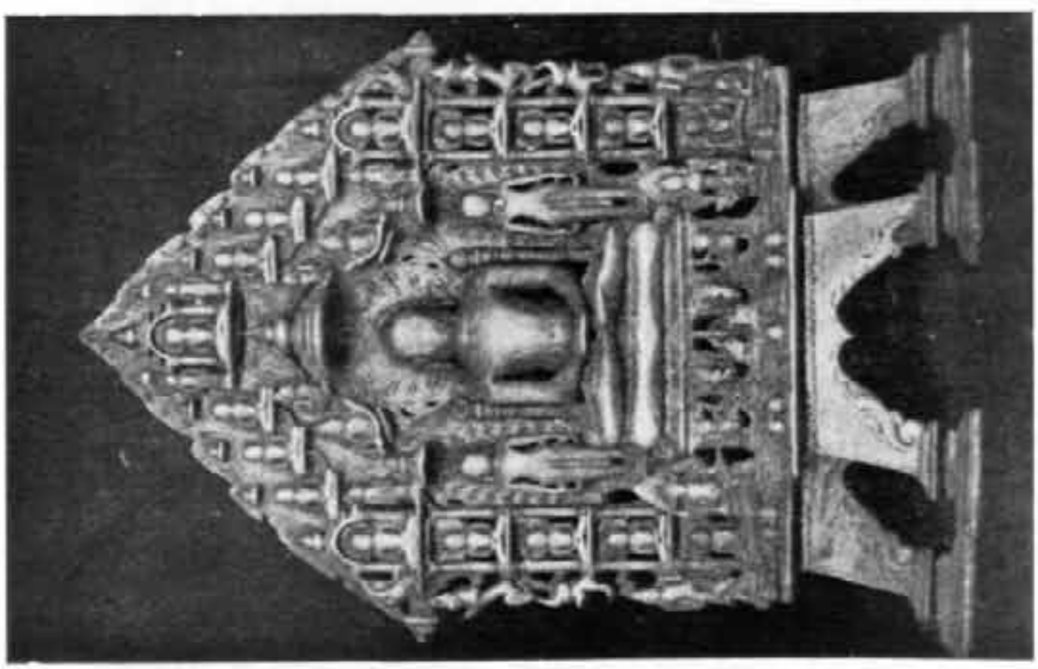


B

Ghoga : A, bronze tirthankaras; B, *bronze Parsvanatha.* *See p. 97*



B



A

Ghoga : bronze tirthankara and its inscribed back side. *See p.* 97

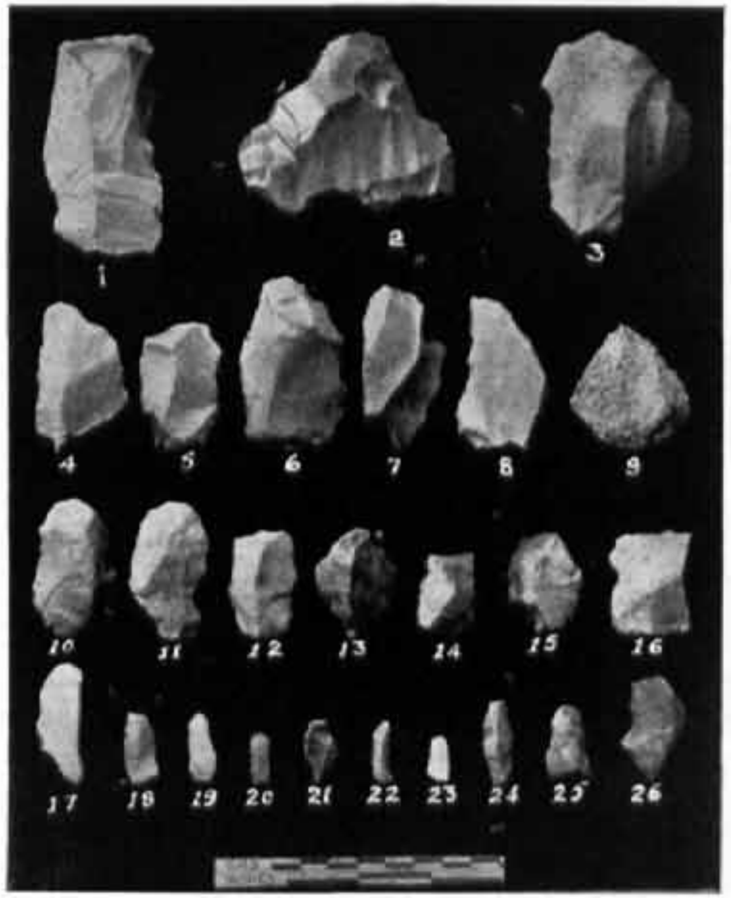


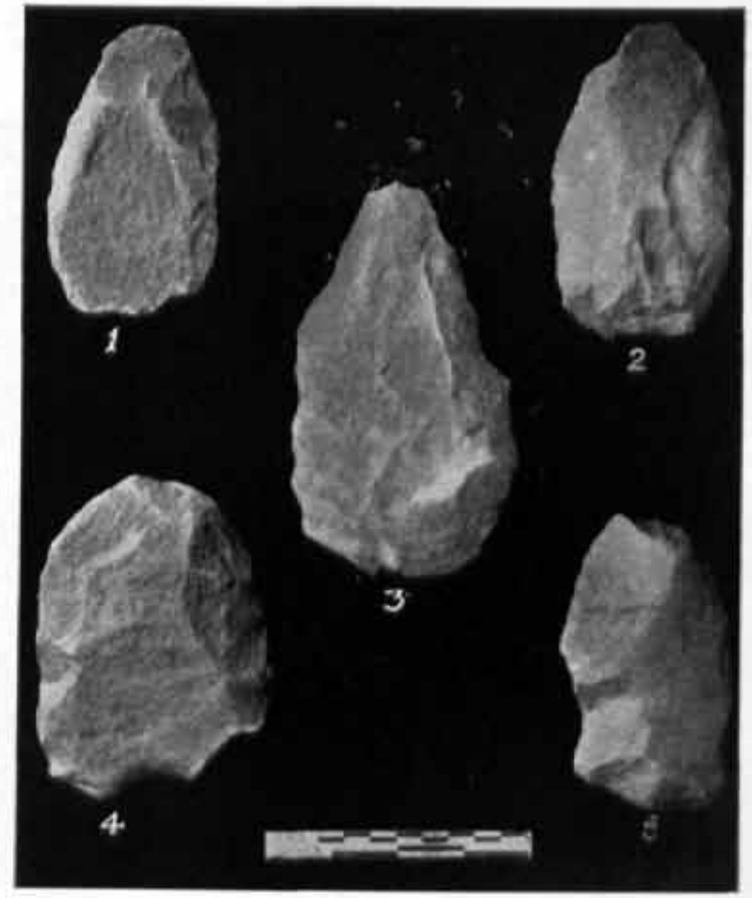
A



B

Brijpur : paintings in rock-shelter. See p. 99

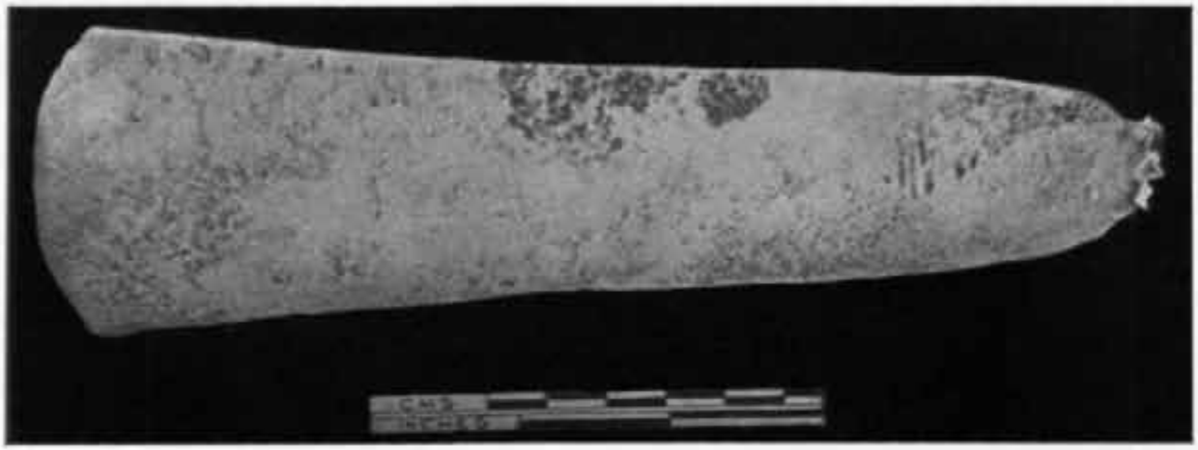




A

B

A. *Medhi* (1, 3, 8 *and* 16), *Chhidgaon* (4, 6 *and* 11), *Majholi* (15, 22, 23, 25 *and* 26), *Umaria* (10, 18, 19, 20 *and* 23), *Mohal-Kalan* (2, 5, 7, 12, 13 *and* 14) : *tools of Middle and Late Stone Ages;* B. *Singhpur* (4 *and* 5), *Karia-kheda* (3), *Raibor* (1), *Burkipur* (2) : *tools of Early Stone Age.* *See pp.* 99 *and* 100

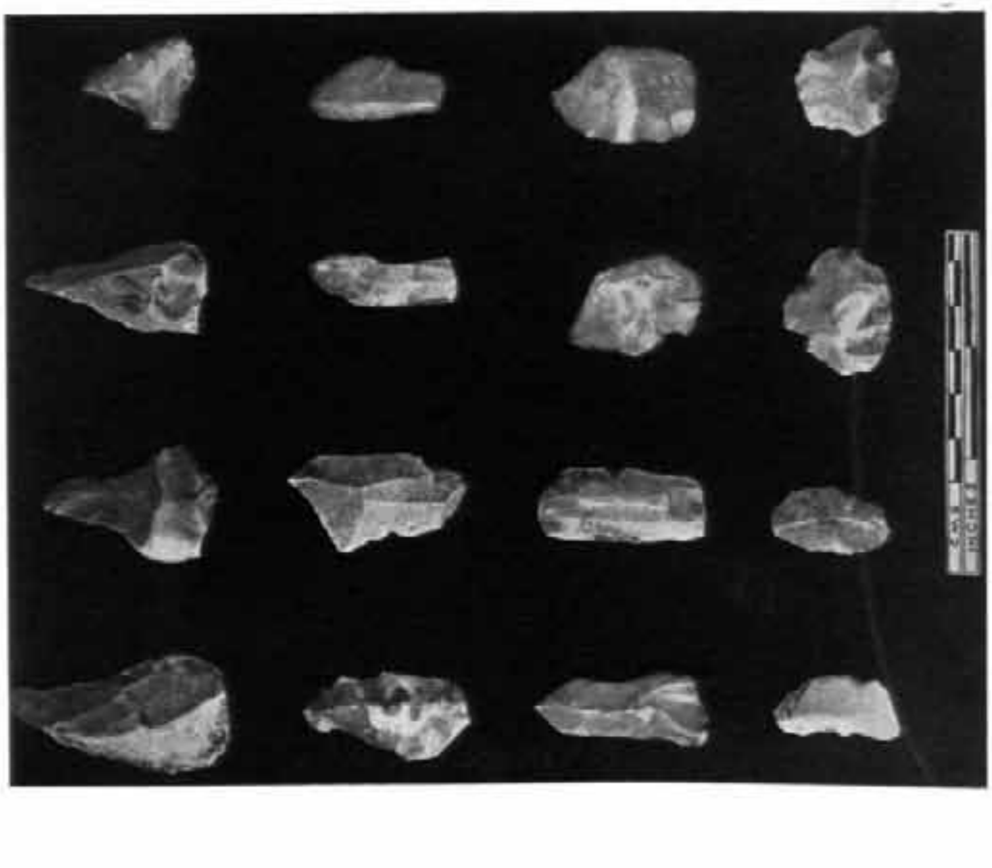


A

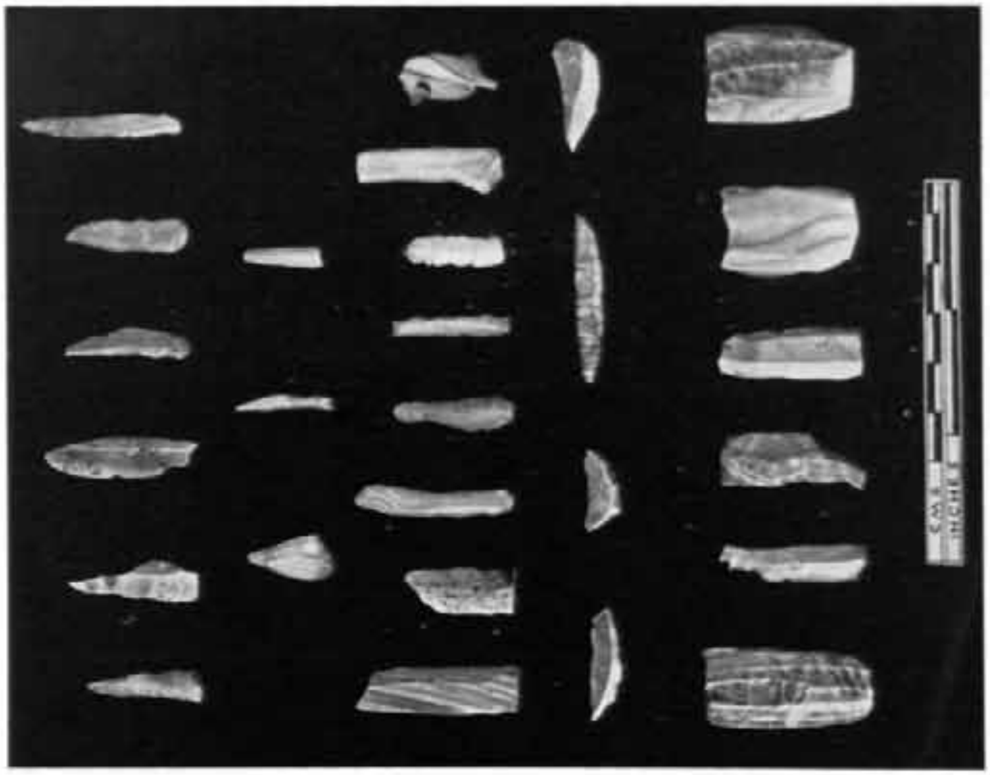


B

Dabakia and Ramjipur : copper celts. *See p.* 99



A



B

Itar-Pahar : tools of Middle and Late Stone Ages. *See p.* 100



A



B

Kanheri : A, *stone casket with pottery vessel inside, in front of Cave* 2: B, *brick structure in front of Cave* 3.
See p. 101



A



B

Kanheri : A, *clay objects, and* B, *stupa fragments etc., Cave 33.* *See p.* 101



A



B

Ter : limestone medallions. *See p.* 102

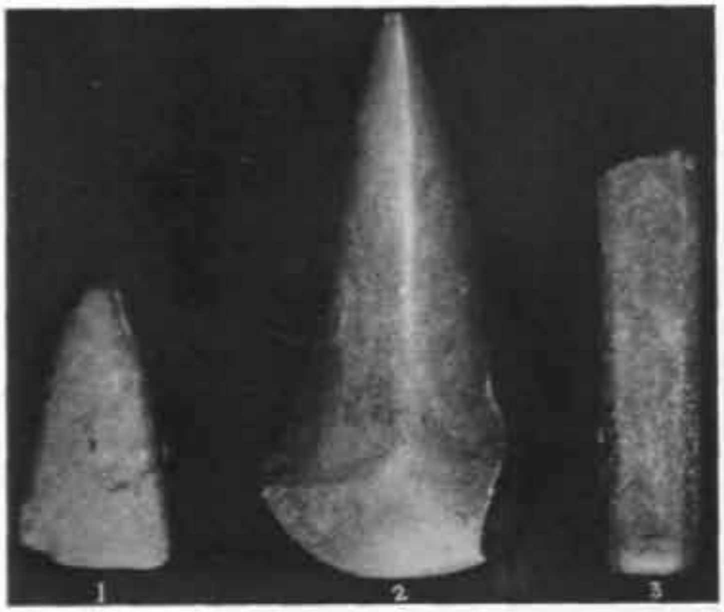


A

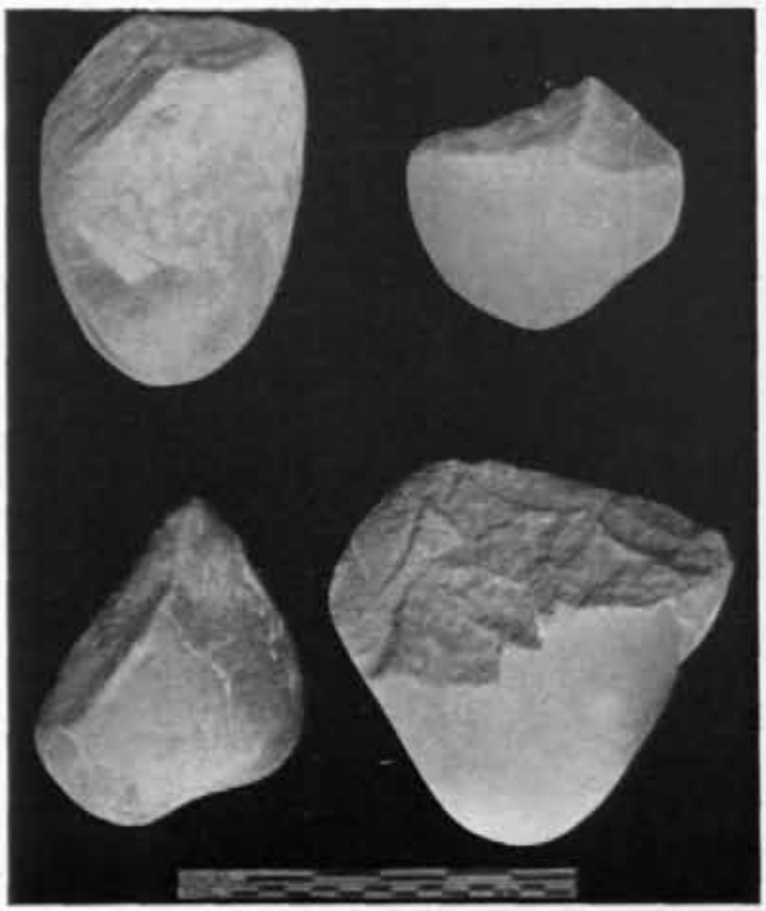


B

Ter : limestone coping-fragments. See p. 102



A



B

A, *Haripur : neolithic tools;* B, *Kalsi : tools of Early Stone Age. See pp.* 102 *and* 103



A



B



C



D

A, *Kangra : four-headed Siva;* B, *Sainthili : sculptured door-jamb;* C, *Sainthili : stone head;* D, *Jaitpur : royal Kushan sculpture. See pp.* 103 *and* 104



A



B

Atranji-khera : A, *Painted Grey Ware;* B, *terracotta human figurines. See p.* 103



A



B



C

Baroda Museum, Baroda : A, *terracotta female figurine;* B, *stone pitcher from Shamlaji* ; C, *Collection, Department of Archaeology, West Bengal : Karttikeya from West Dinajpur. See pp.* 105 *and* 107



Asutosh Museum, Calcutta: terracotta figurines from Chandraketugarh, 1, *head of yakshi (ht.* 11·4 *cm.);* 2, *tablet with cock and hen (ht.* 5·7 *cm.);* 3, *Kubera (?) in form of rattle (ht.* 11·4 *cm.);* 4, *Sarasvati (ht.* 12 *cm.);* 5, *elephant toy-cart (ht.* 12·7 *cm.);* 6, *pillar-base with winged lion (ht.* 6·9 *cm.). See pp.* 106 *and* 107



A



B



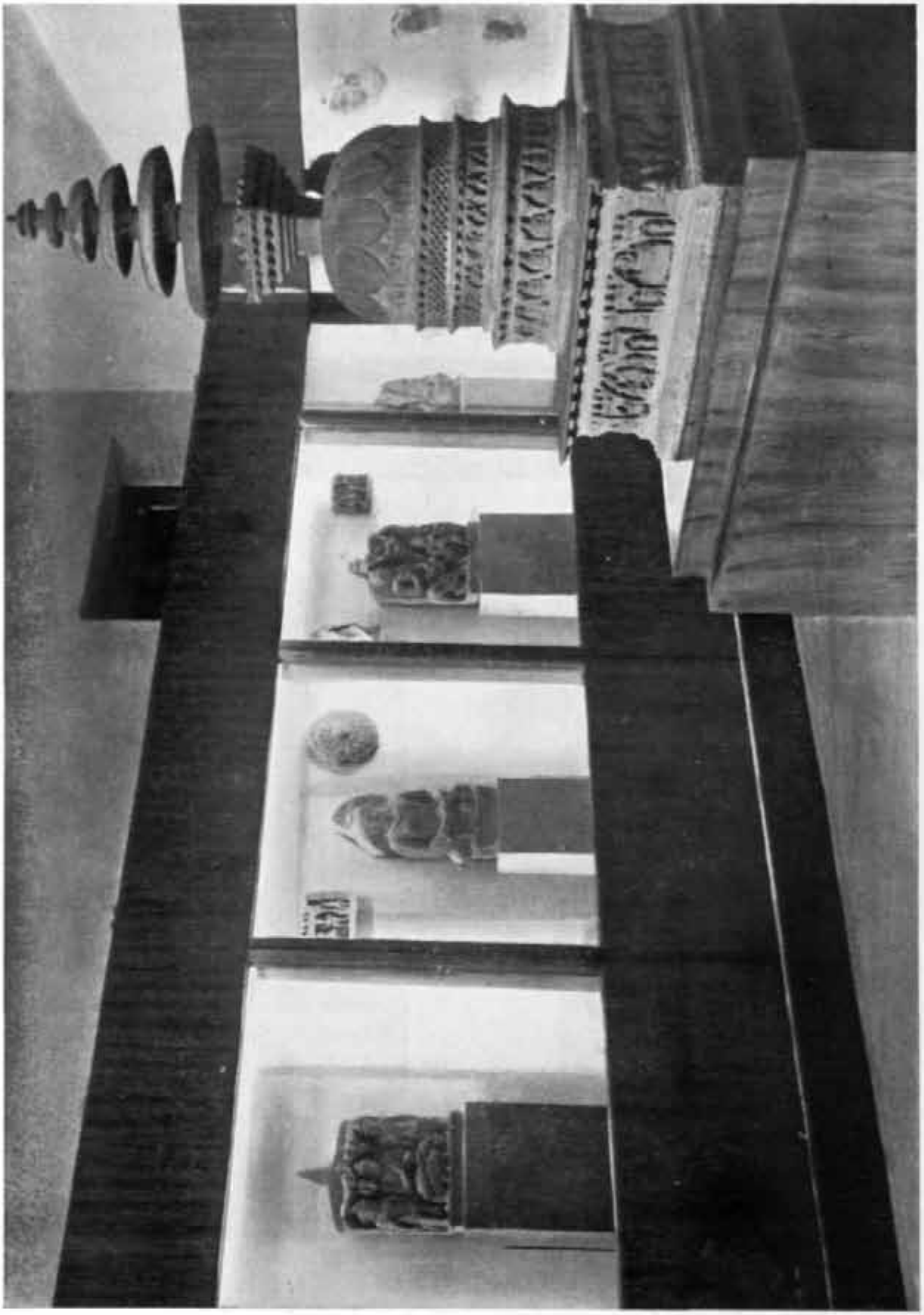
C



D

Asutosh Museum, Calcutta : A, *stone Vishnu Lokesvara from Patra;* B, *wood-carving from south India;* C *and* D, *lamp-stand from Nepal.*

See p. 107



Indian Museum, Calcutta : re-organized Gandhara Gallery. *See p.* 108



A

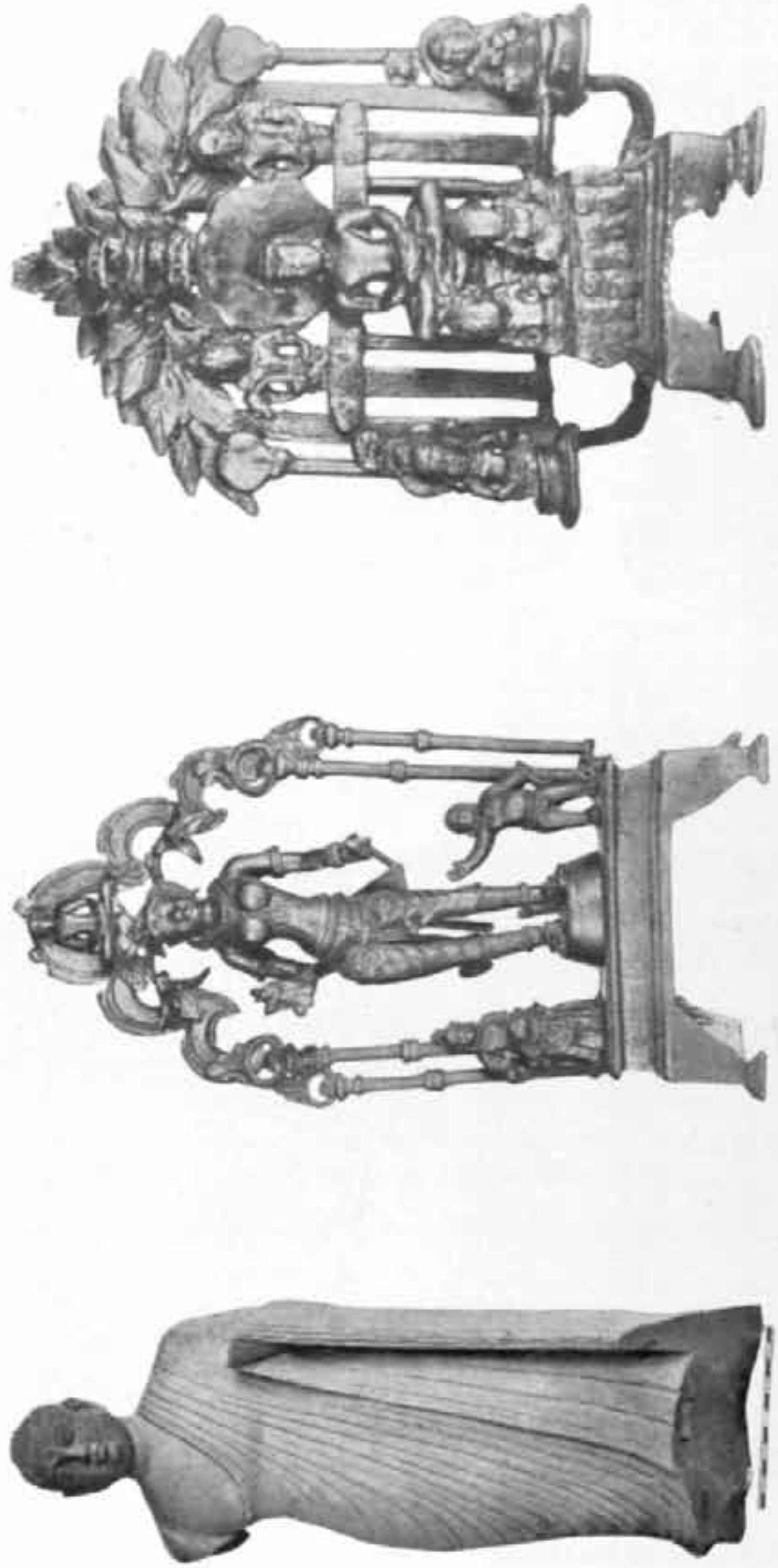


B



C

A, *Indian Museum, Calcutta : silver coins of Shamsu'd-Din Ahmad Shah;* B *and* C, *Chandradhari Museum, Darbhanga : folio from a manuscript of Shah-nama. See p.* 108

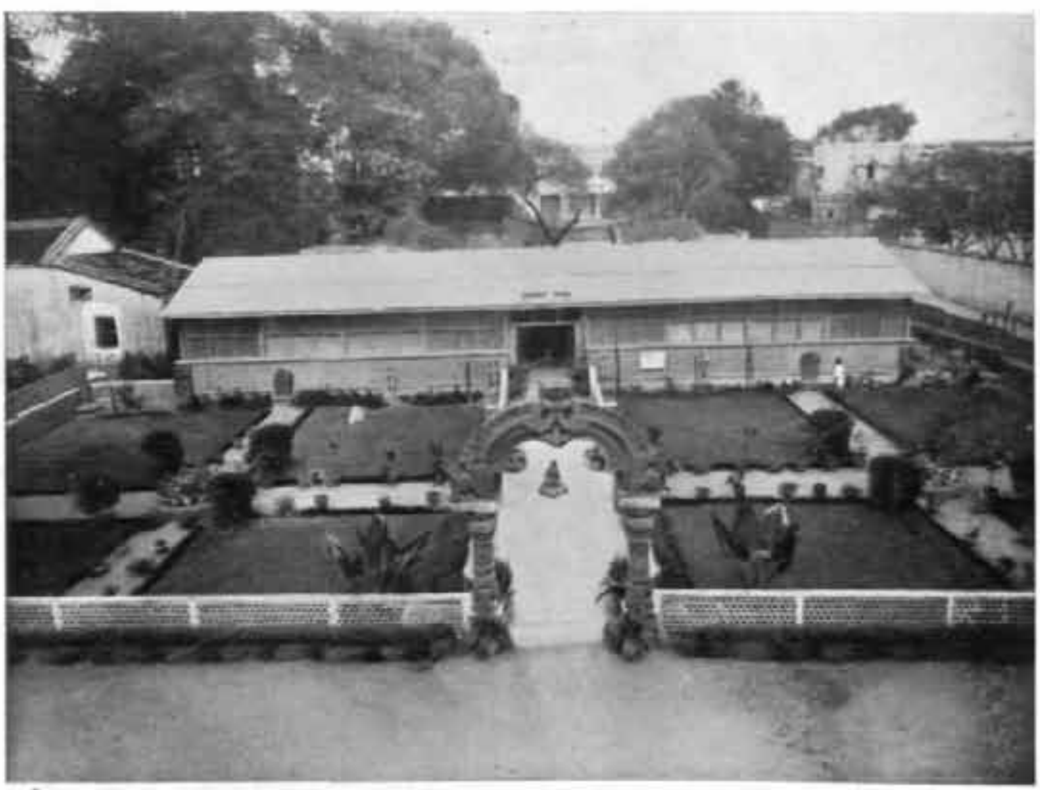


A B C

Hyderabad Museum, Hyderabad : A, *stone Buddha image from Uppugundur*; B, *bronze image of Ambika from Bapatla*; C, *bronze tirthankara from Bapatla. See p.* 108



A



B

A, *Hyderabad Museum, Hyderabad : bronze bells from Kulpak;* B, *Yellaisharam Pavilion, Hyderabad. See p.* 109



A



B

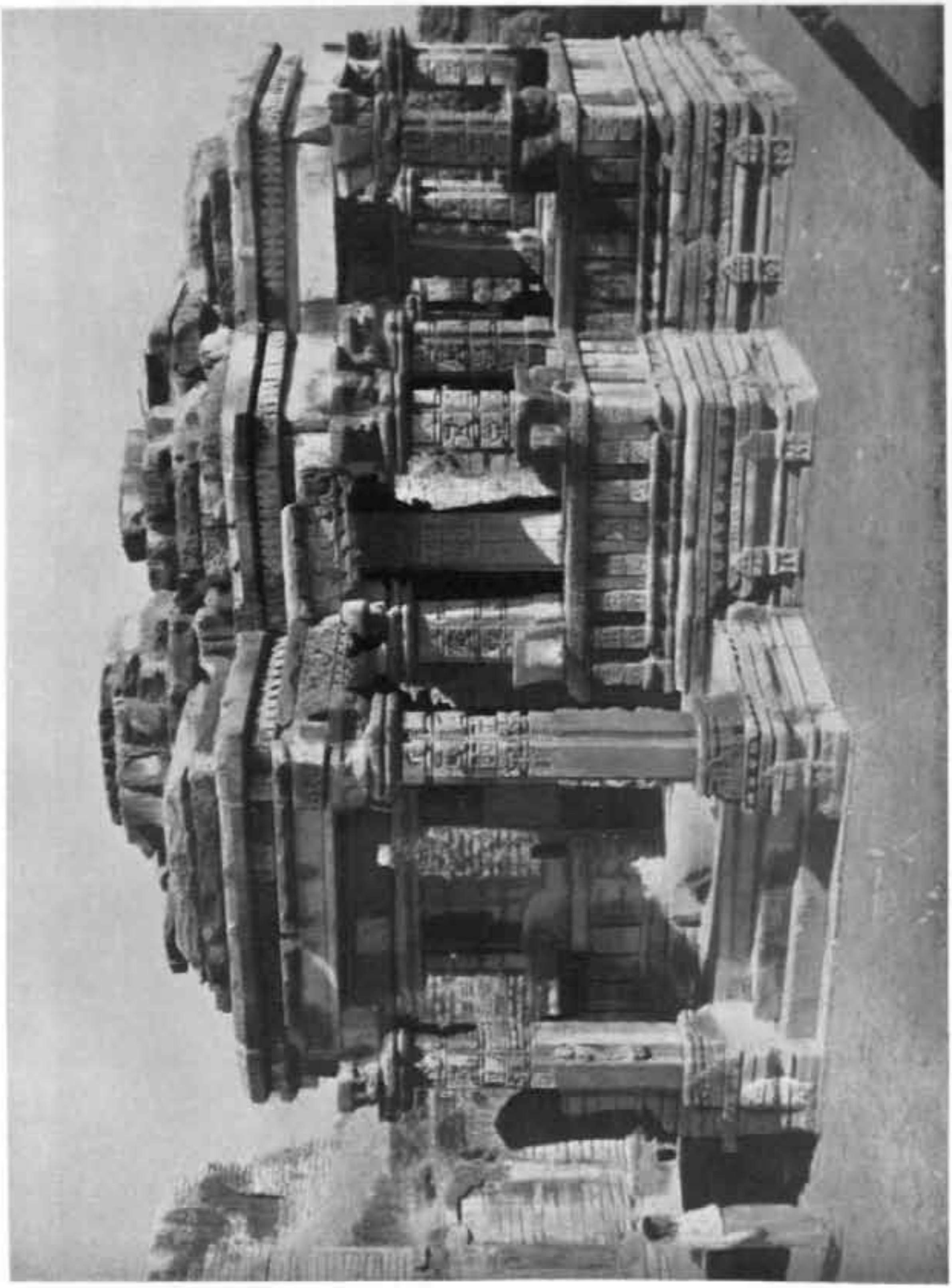


C

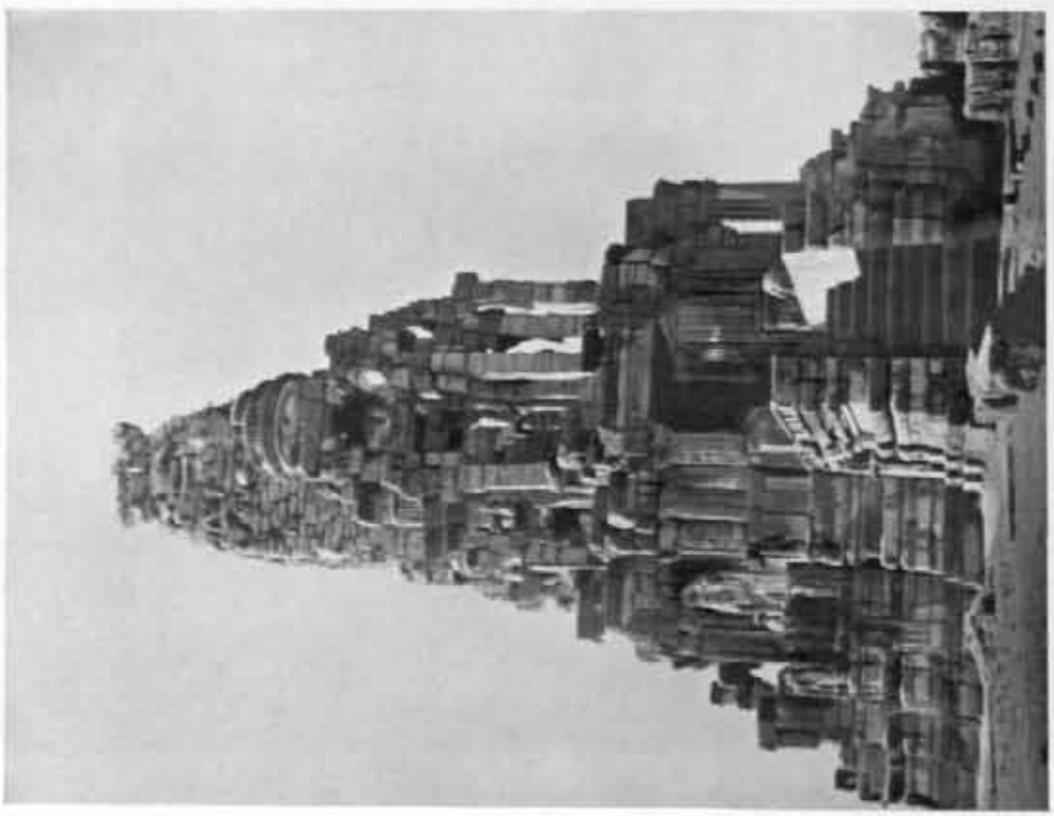


D

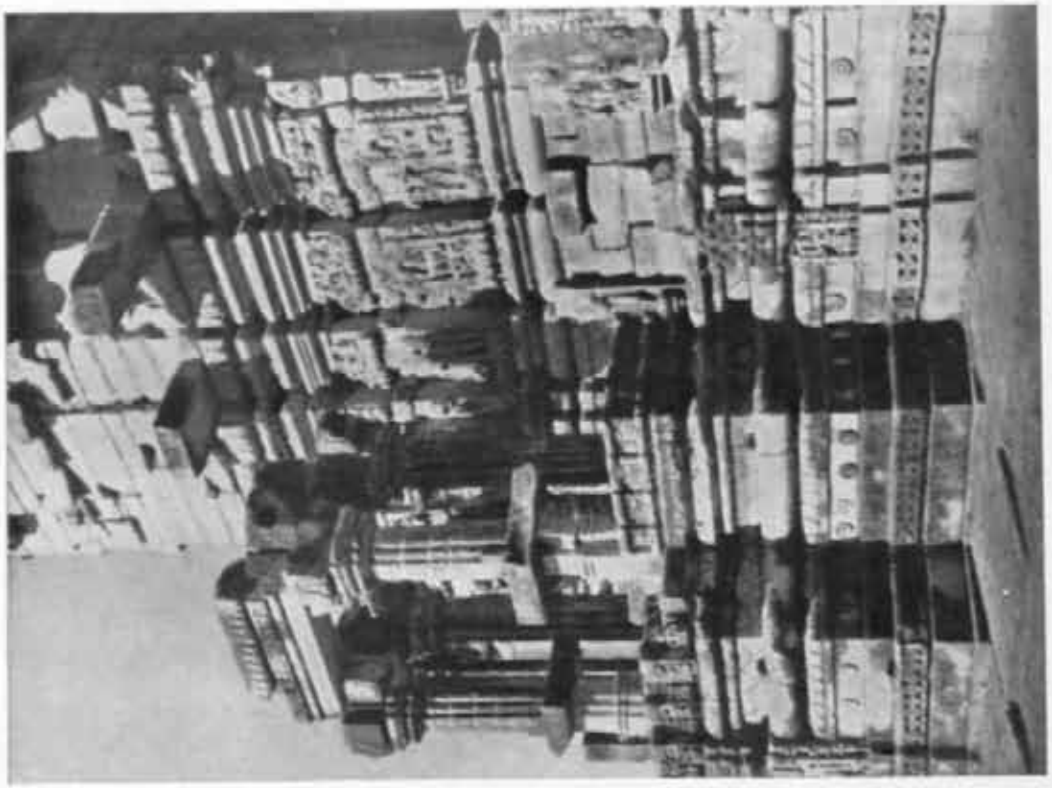
National Museum, New Delhi : Ivory carvings from Begram, Afghanistan. See p. 110



Padhaoli : temple in gadhi. *See p.* 112



A



B

Sahaniya : A, *Kakanmarh temple, and* B, *details of its plinth.* *See p.* 112



Mukhalingam : Somesvara temple, south side. *See p.* 112



A



B

A, *Nandi : Bhoga-nandisvara temple;* B, *Badami : Malegitti-Sivalaya. See p.* 113



A



B

A, *Mahabalipuram : Shore temple;* B, *Kanchipuram : Kailasanatha temple. See p.* 113

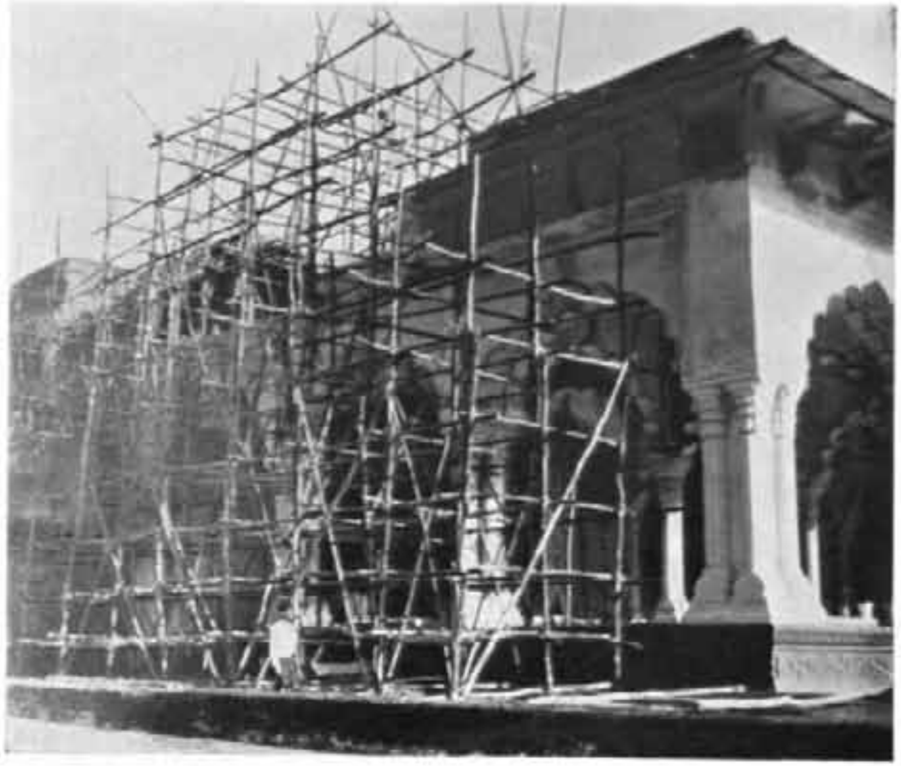


A



B

A, *Ellora : Kailasa temple, vimana;* B, *Patadkal : Mallikarjuna temple. See p.* 113



A



B

Agra : fort, Diwan-i-'Am, during and after repairs. See p. 123



A



B

Agra : Taj-Mahal, plinth of main entrance-gate, during and after repairs. See p. 123

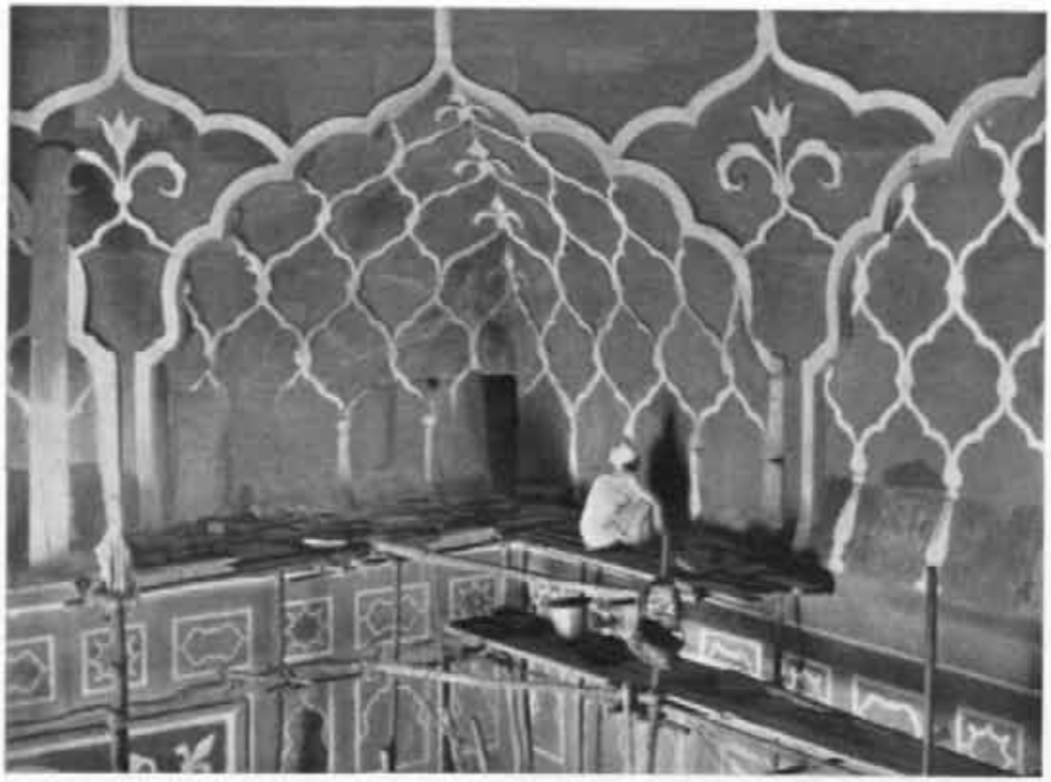


B



A

Delhi : Quwwatu'l-Islam mosque, iron pillar, base, A, after preservation, and B, details of lead sheet inserted at base. *See p.* 124



A

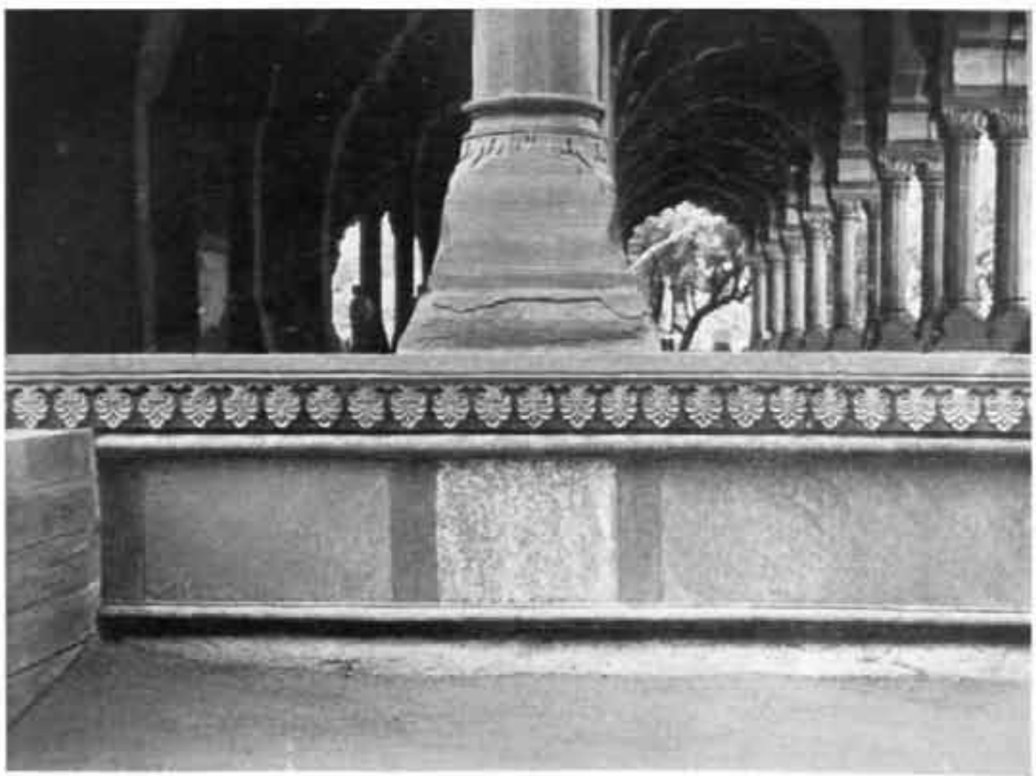


B

Delhi : A, *Jami-'Masjid, details of ornamental work in squinches of prayer-chamber during repairs*; B, *Quwwatu'l Islam mosque, floor and iron pillar, during repairs. See pp.* 124 *and* 125



A



B

Delhi : Red Fort, Diwan-i-'Am, dasa-stone in plinth, before and after repairs. See p. 125



A

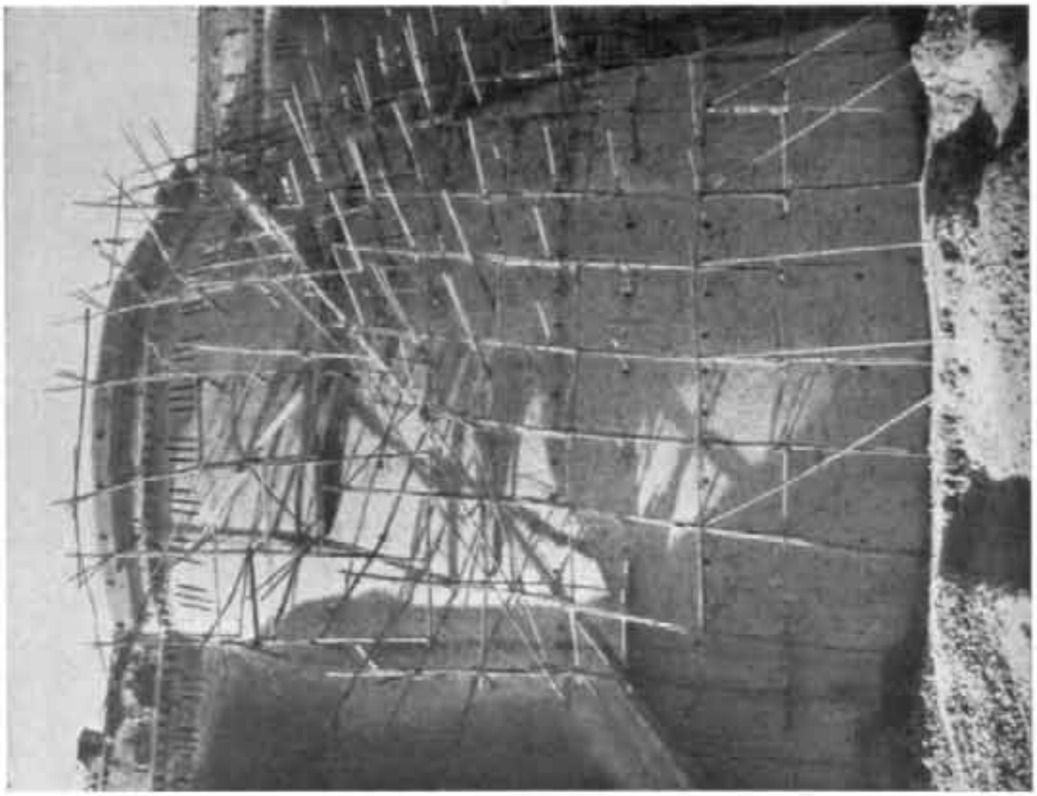


B

New Delhi : Humayun's tomb, cells in inner side of enclosure-wall, during and after repairs. See p. 126



A



B

Bhatinda : fort, bastion, before and during repairs. *See p.* 127

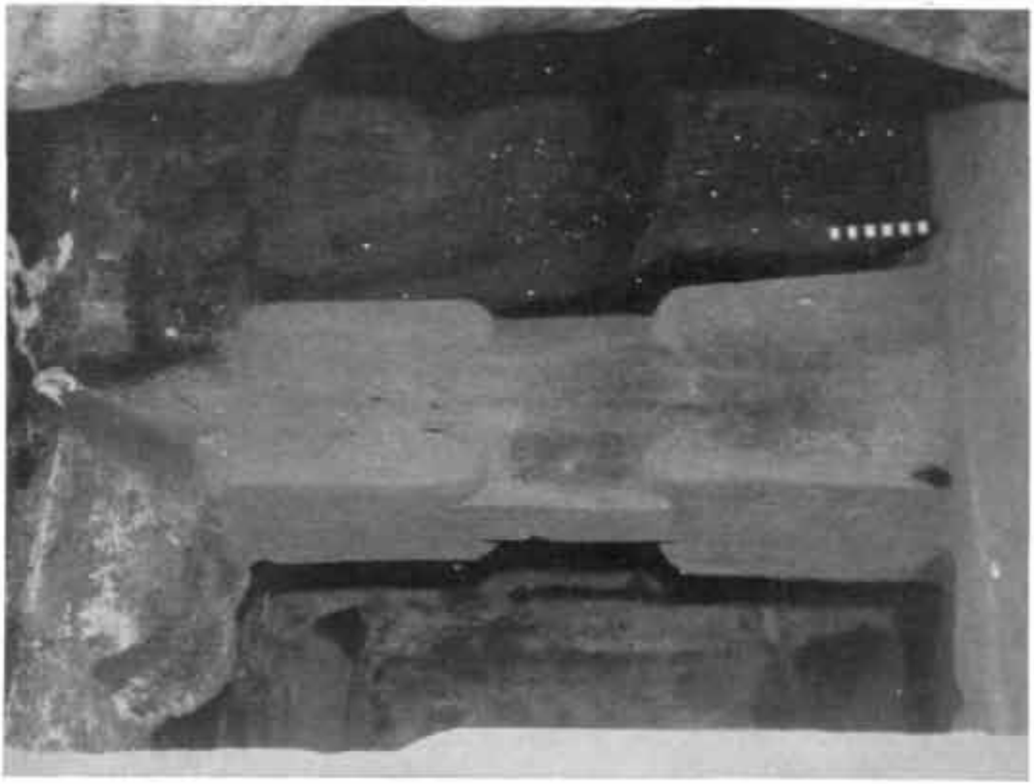


A



B

Golkonda : Naqqar-khana, before and after repairs. See p. 129





A B

Mogalrajapuram : Cave 2, rock-cut pillar, before and after restoration. *See p.* 130

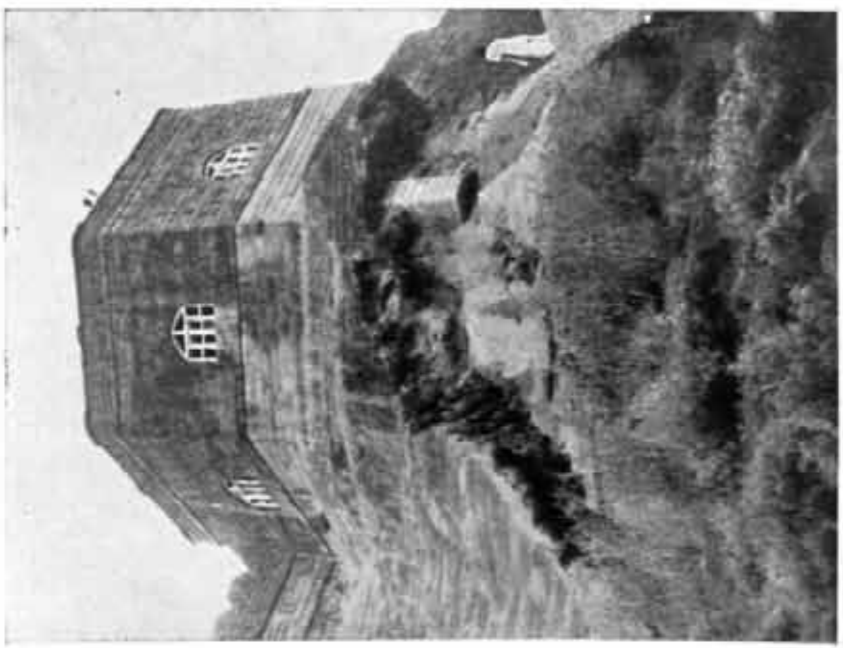


A

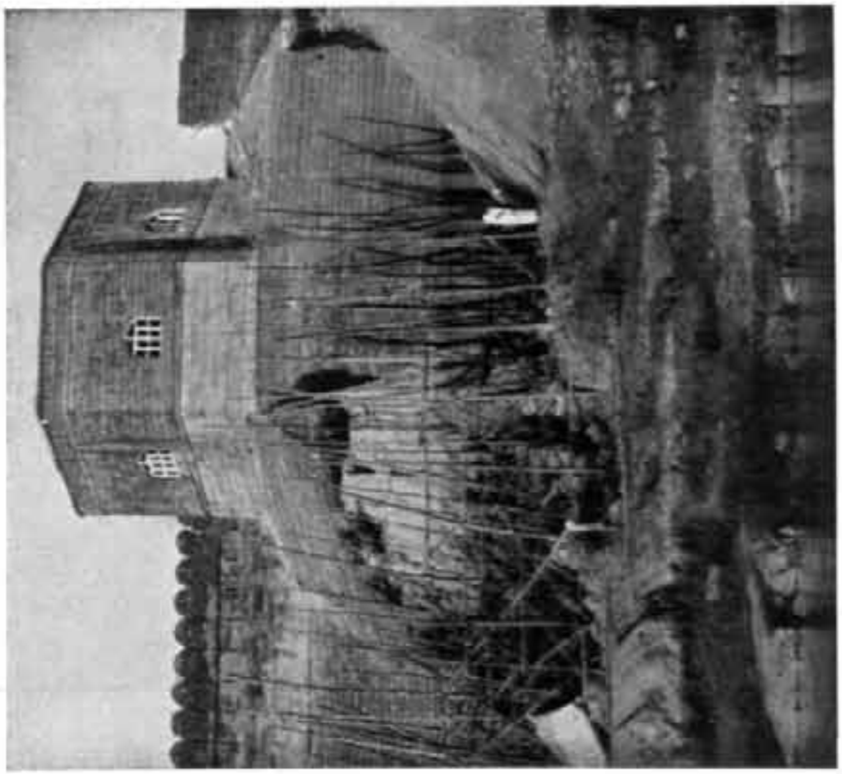


B

Armori : Mahadeva temple, before and after clearance and repairs. *See p.* 130



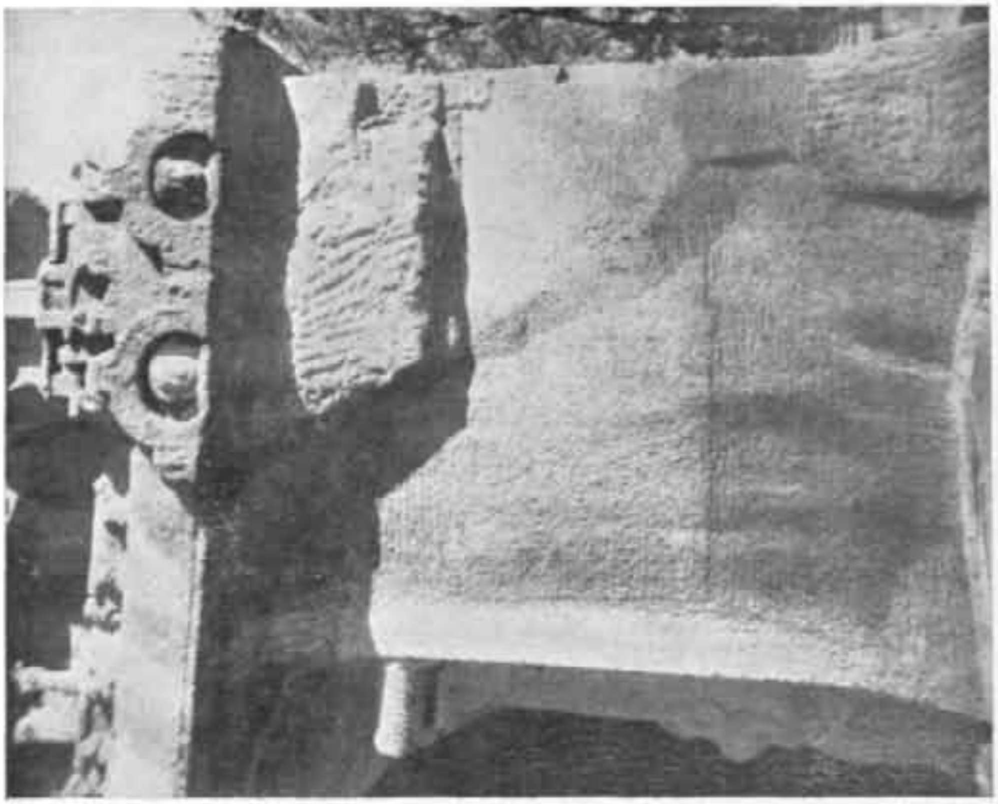
A



B

Balapur : fort, Rani-Mahal, before and after repairs. See p. 131

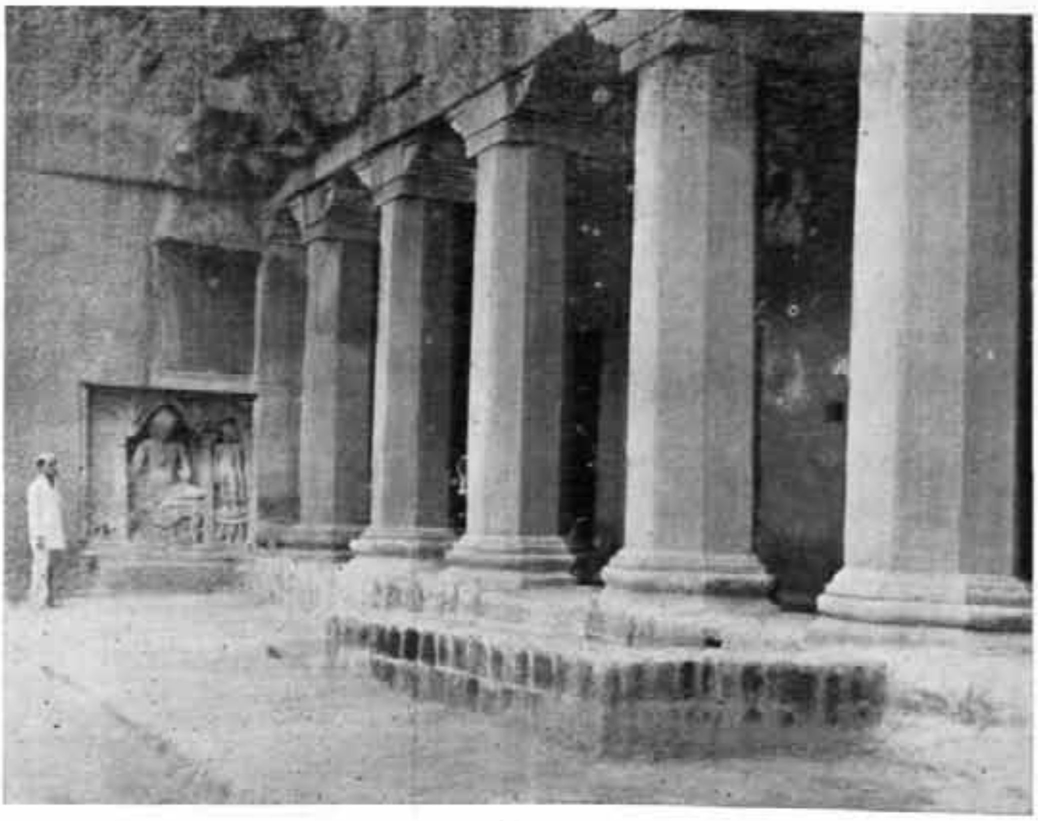




A *Mahabalipuram : Bhima-ratha, before and after repairs.* *See p.* 132 B



A



B

Ajanta : Cave 17, *facade showing* A, *modern ashlar-pillars*, and B, *their restoration in reinforced cement concrete*.
See p. 135



A



B

Ajanta : Cave 26, Buddha-panel, before and after repairs. *See p.* 135



A



B

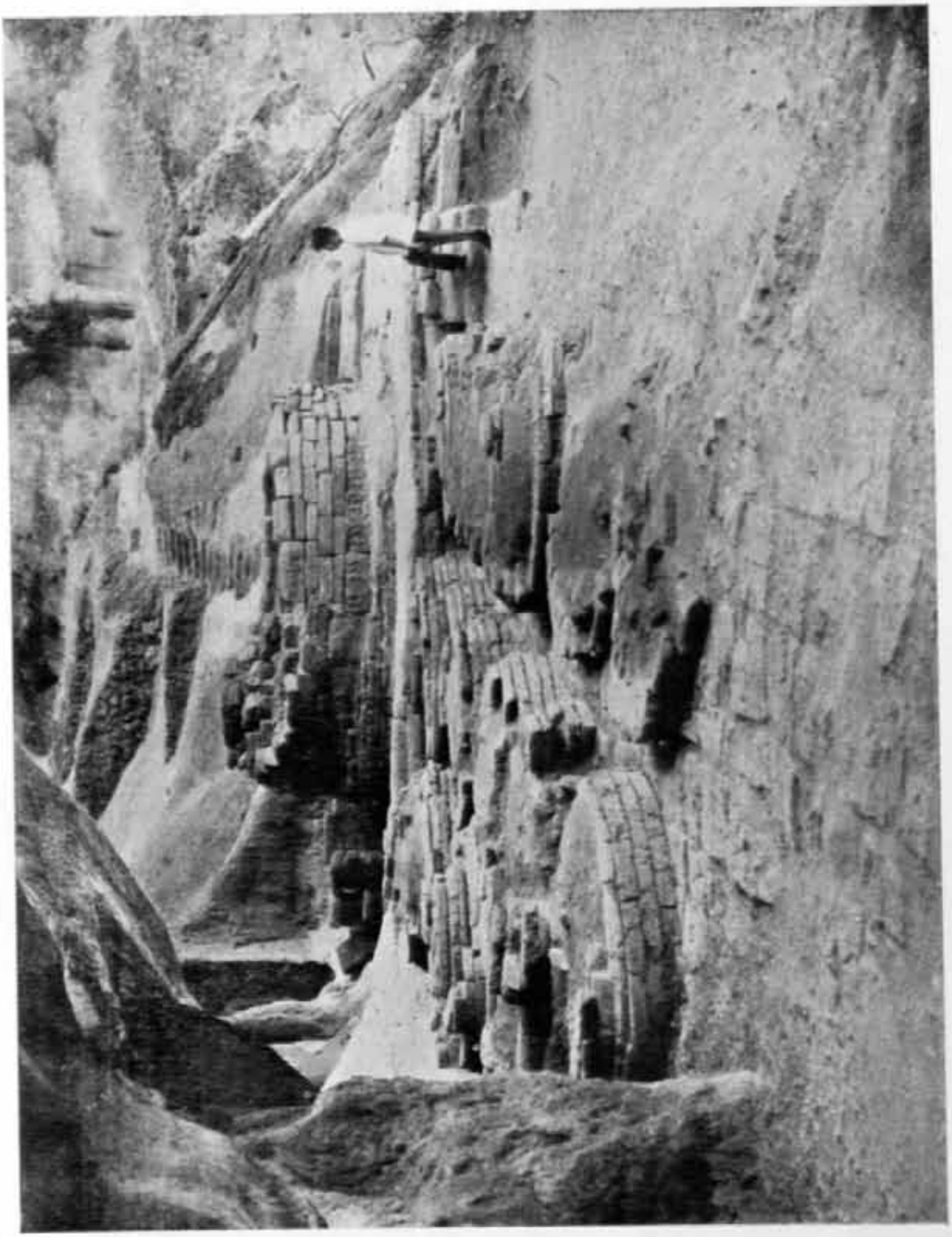


C



D

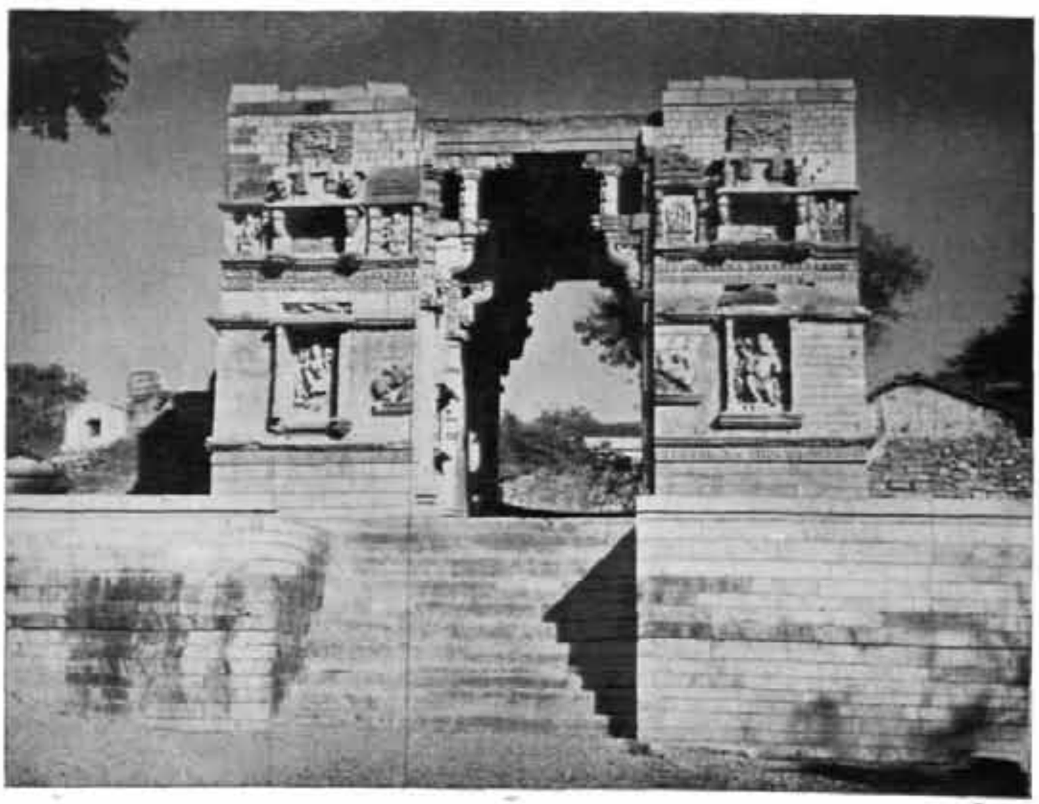
Ajanta : Cave 26, sculptured panels, before and after repairs. *See p.* 135



Kanheri : Cave 38, votive stupas after clearance. See p. 135



A



B

Chitorgarh : eastern Sati gate, before and after repairs. See p. 139

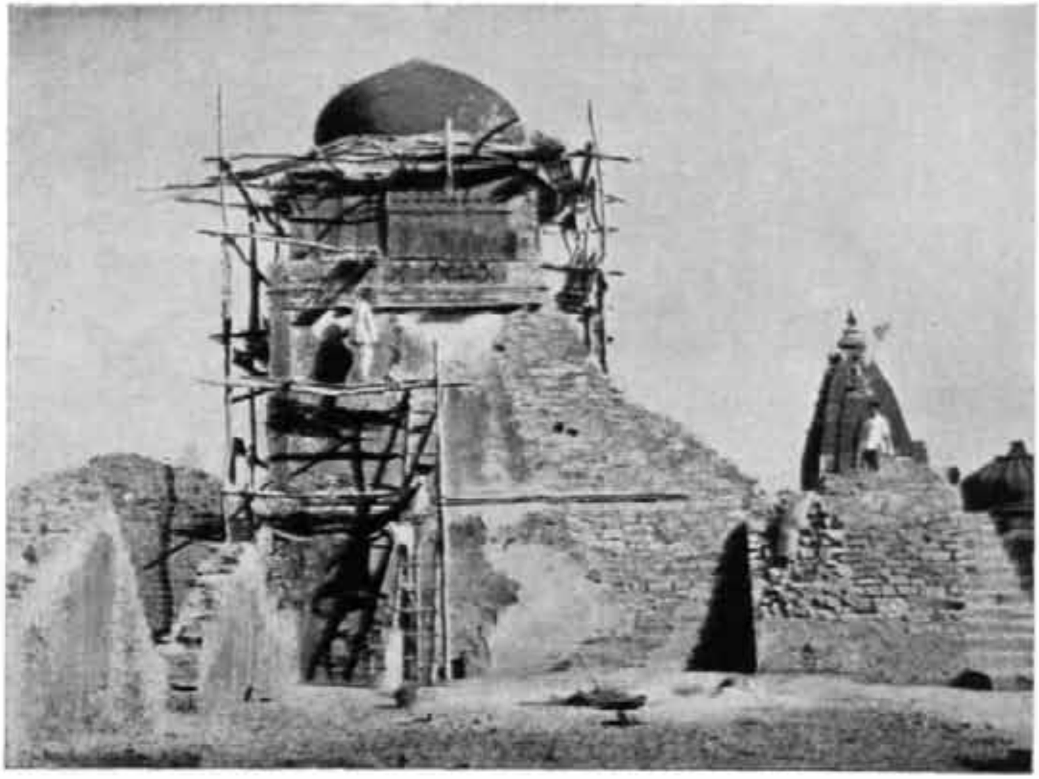


A



B

Chitorgarh : Mahadeva temple near Gomukh, before and after repairs. *See p.* 139



A



B

Chitorgarh : Chunda's house, before and after repairs. *See p.* 139

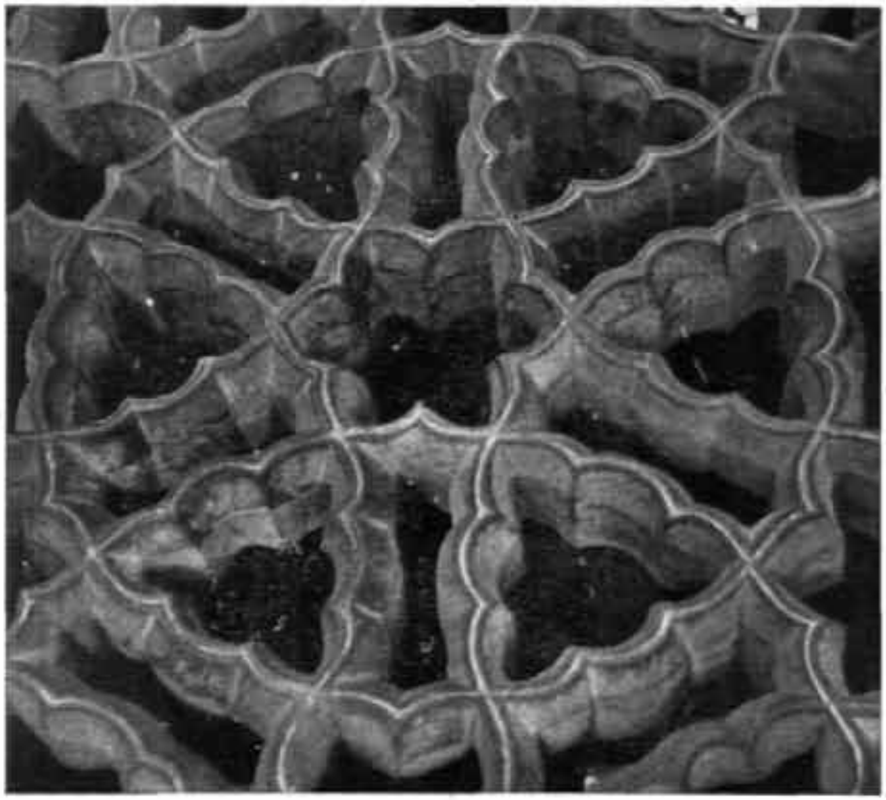


A

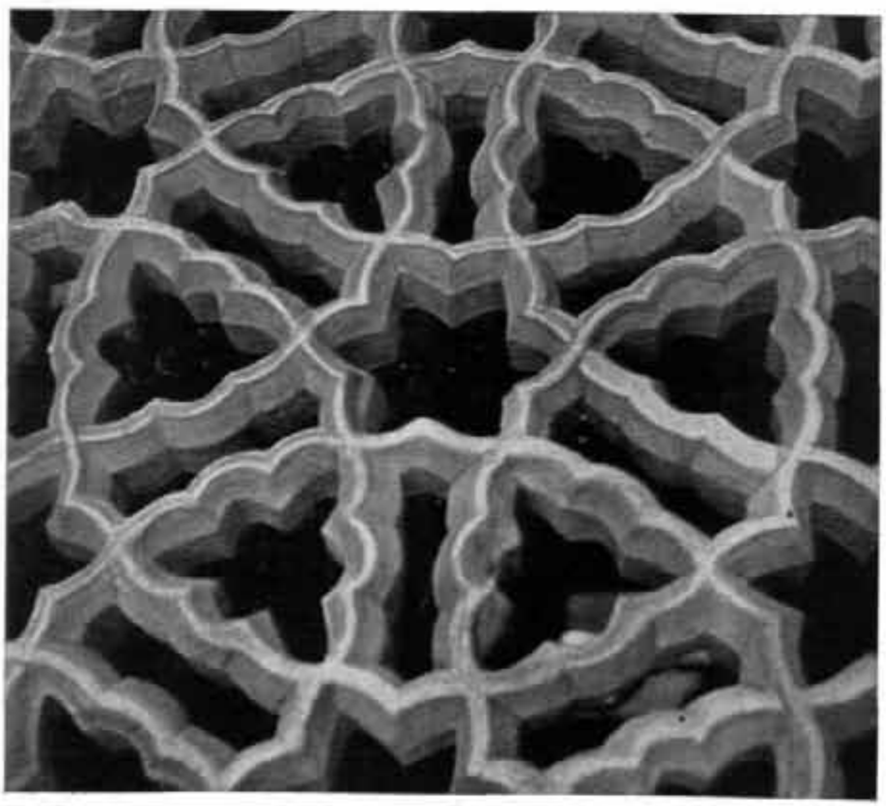


B

Jhinjhuvada : gate, before and after repairs. See p. 141



A



B

Maner : Makhdum Shah's tomb, carved stone ceiling, before and after treatment. See p. 143



Agra : Chini-Ka- Rauza, tilework on eastern wall, during treatment. See p. 147

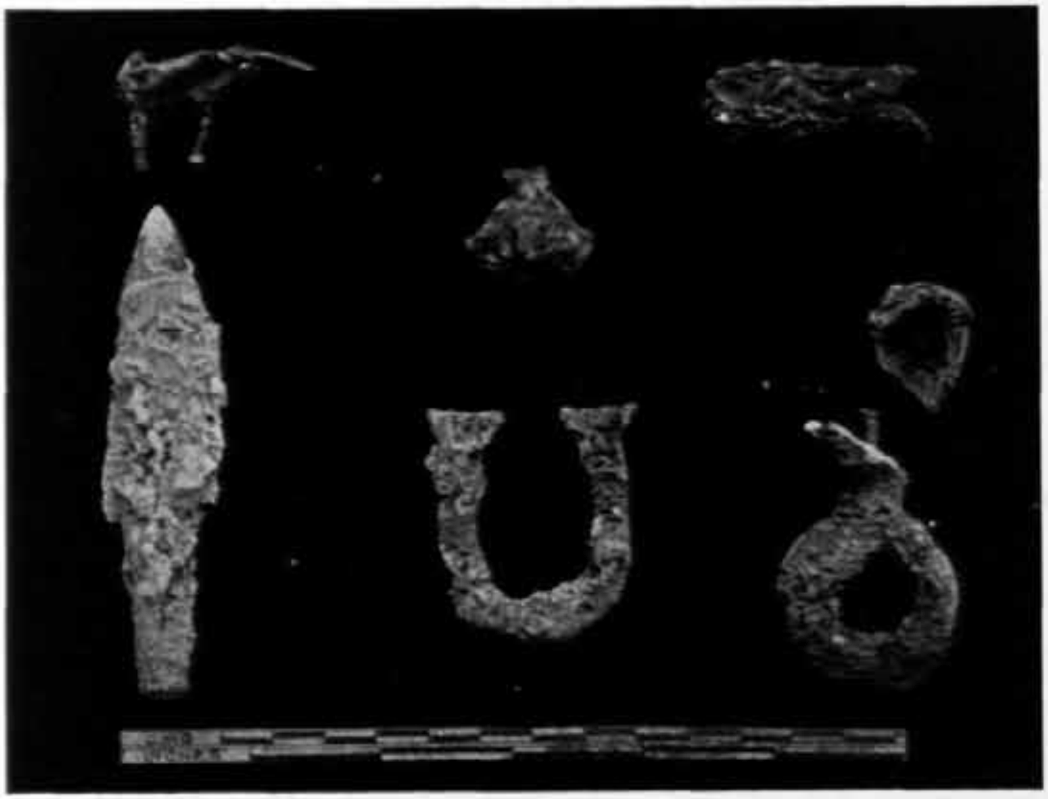


A

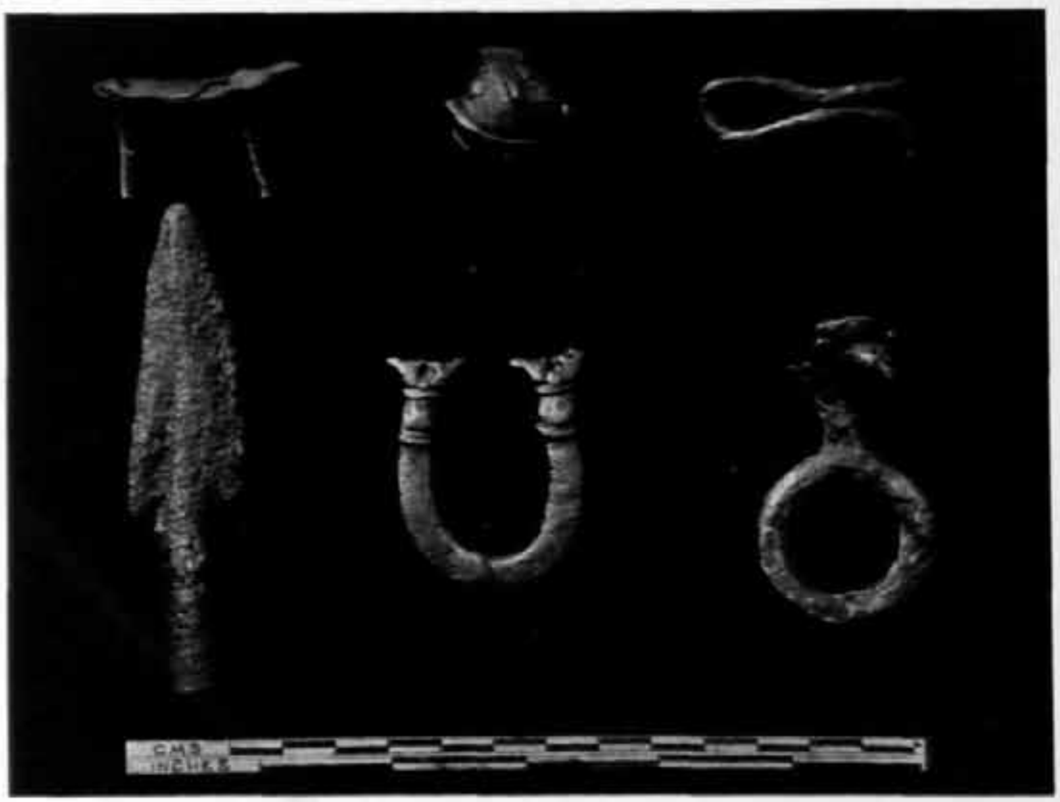


B

Baijnath : Lakshmi-Narayana temple, before and after treatment. *See p.* 148

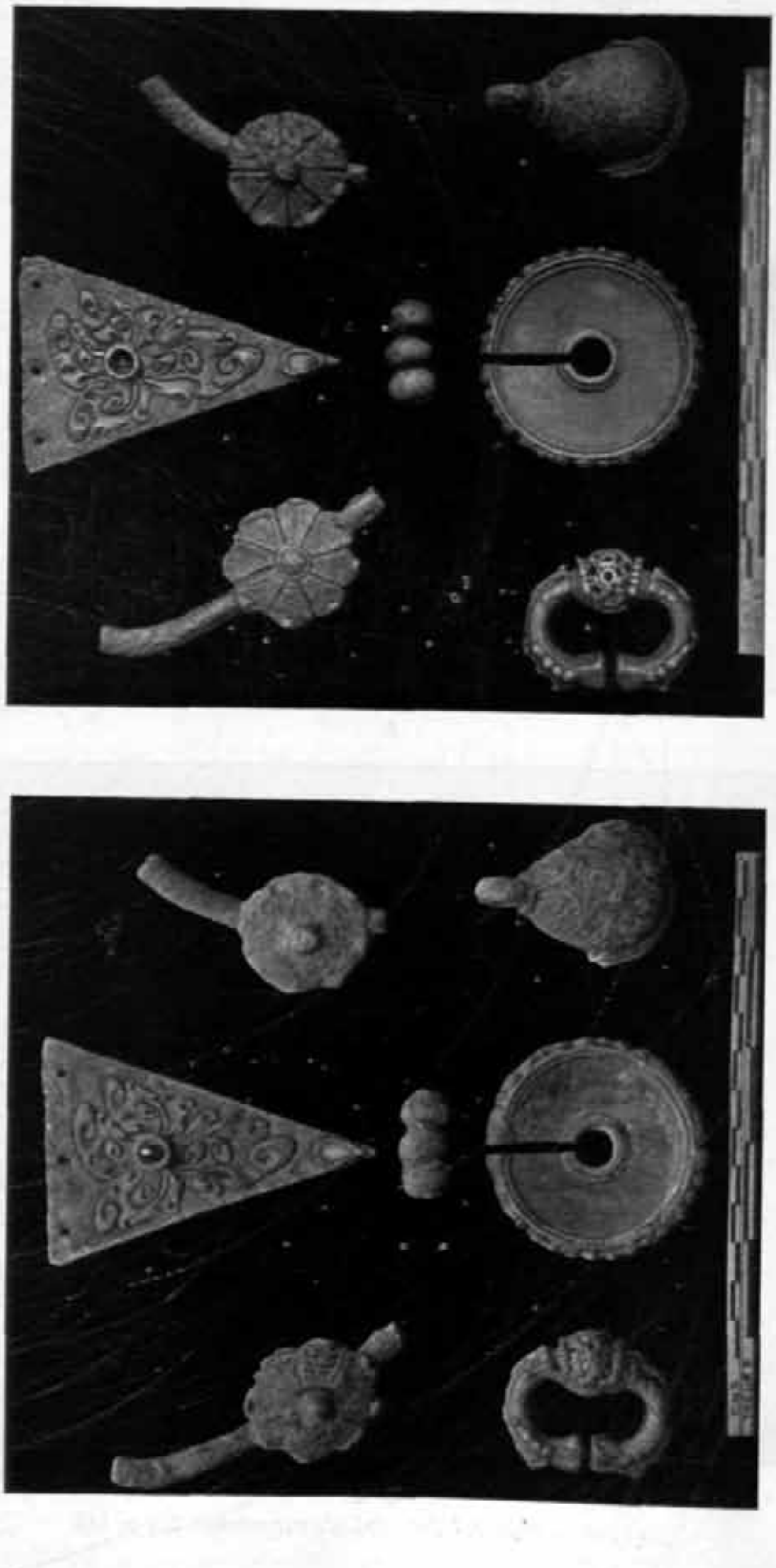


A



B

Ujjain : metal objects, before and after treatment. *See p.* 148



A B

Ratnagiri : metal objects, before and after treatment. *See p.* 148